Keyboard Magazine

# Keyboard

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GE SKILLS · STUDIO SMARTS

## SYNTH FEVER

THE KEYBOARDISTS BEHIND

Barry Gibb

5 WAYS TO PLAY LIKE DR. JOHN

MAKING THE MOST OF THE WURLY

REHARMONIZE AND REJUVENATE

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On New Orleans Piano and Honoring Louis Armstrong

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- Native's first Keyboard Controller

**REASON 8**
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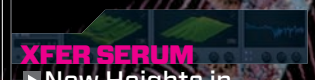

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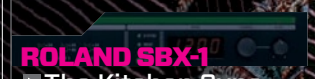

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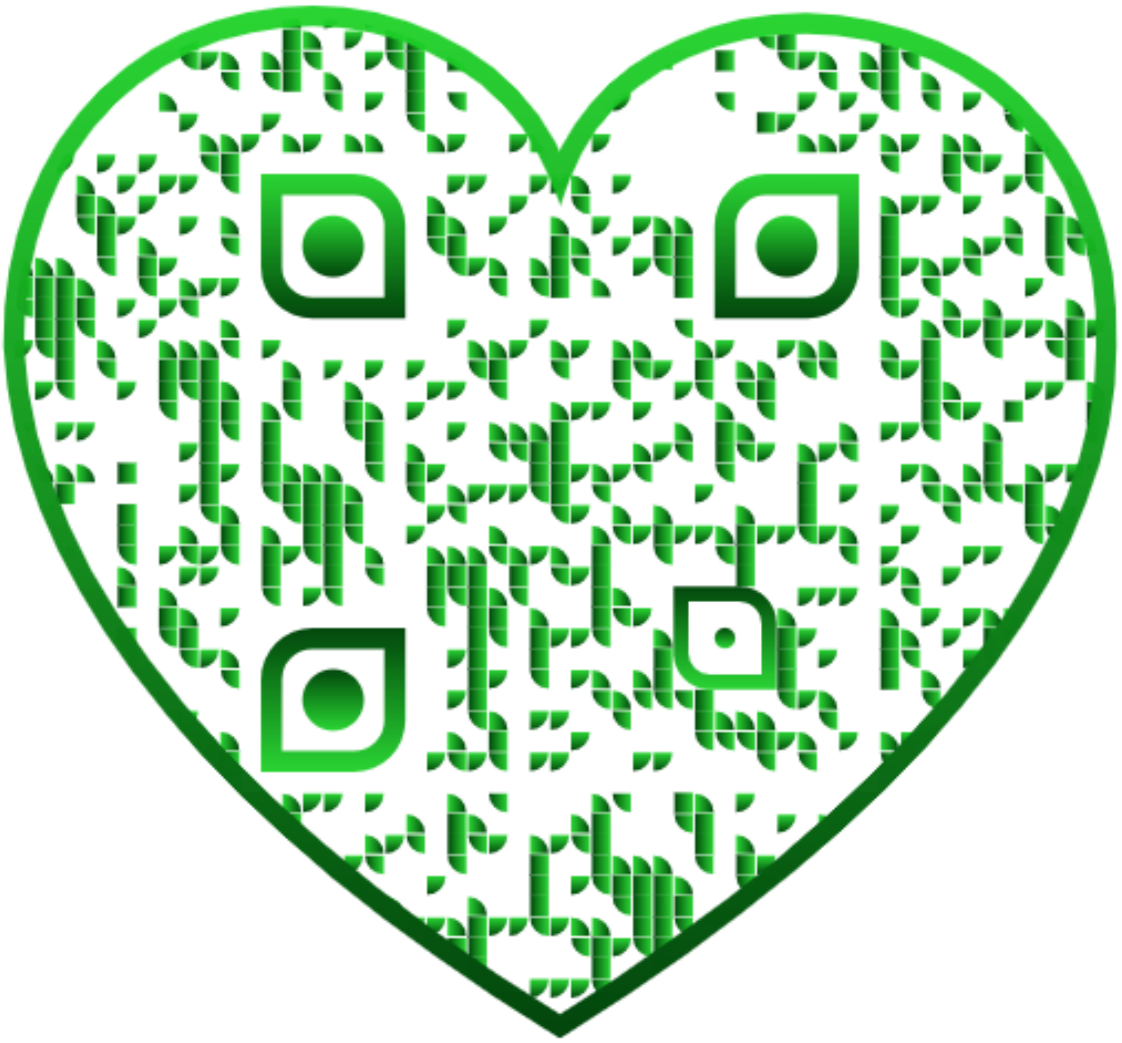

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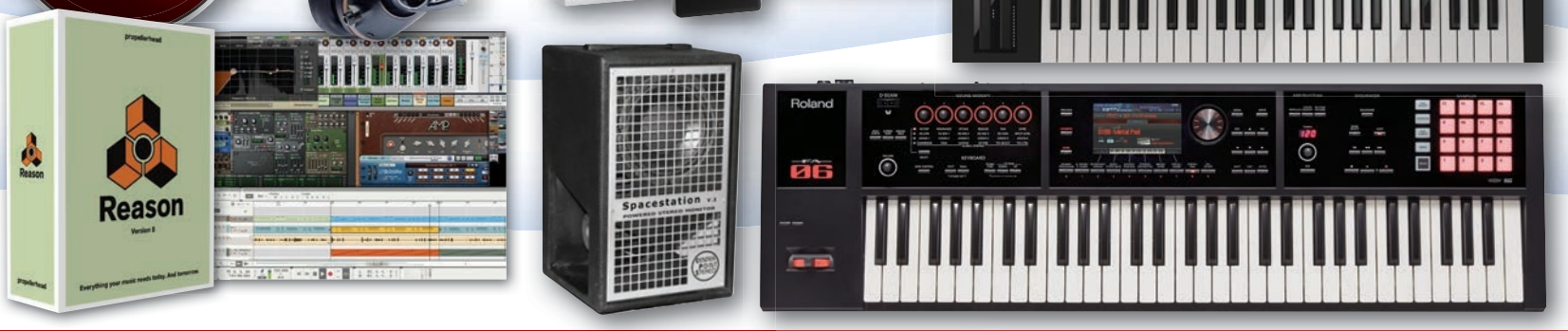


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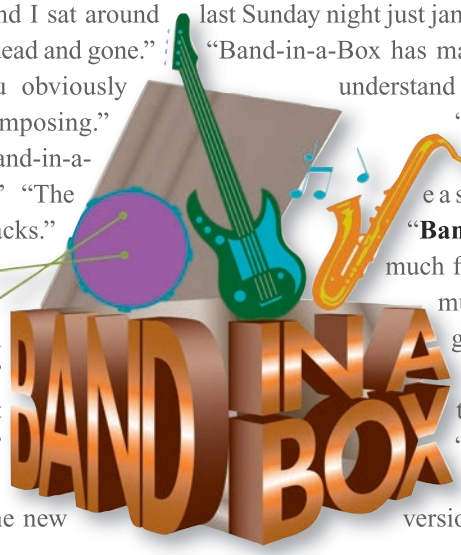


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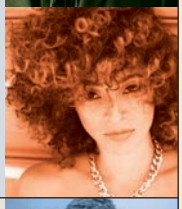


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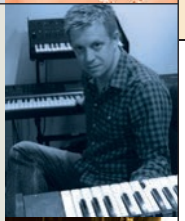

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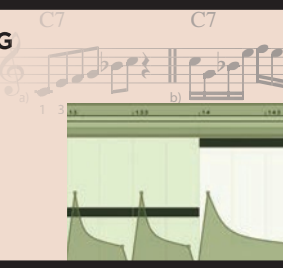



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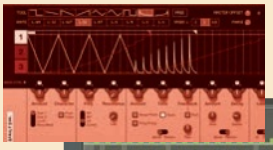

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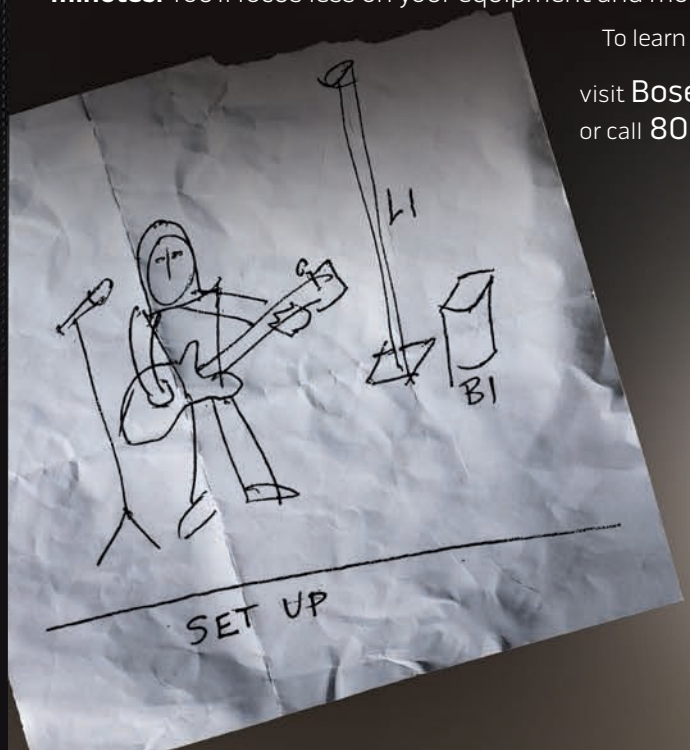

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**~ Joey DeFrancesco**
(Hammond B3 legend)

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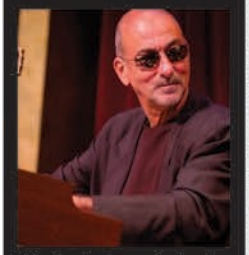
**~ Terry Lawless**
(Keyboardist & programmer - U2)



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(Santana, Joe Satriani)

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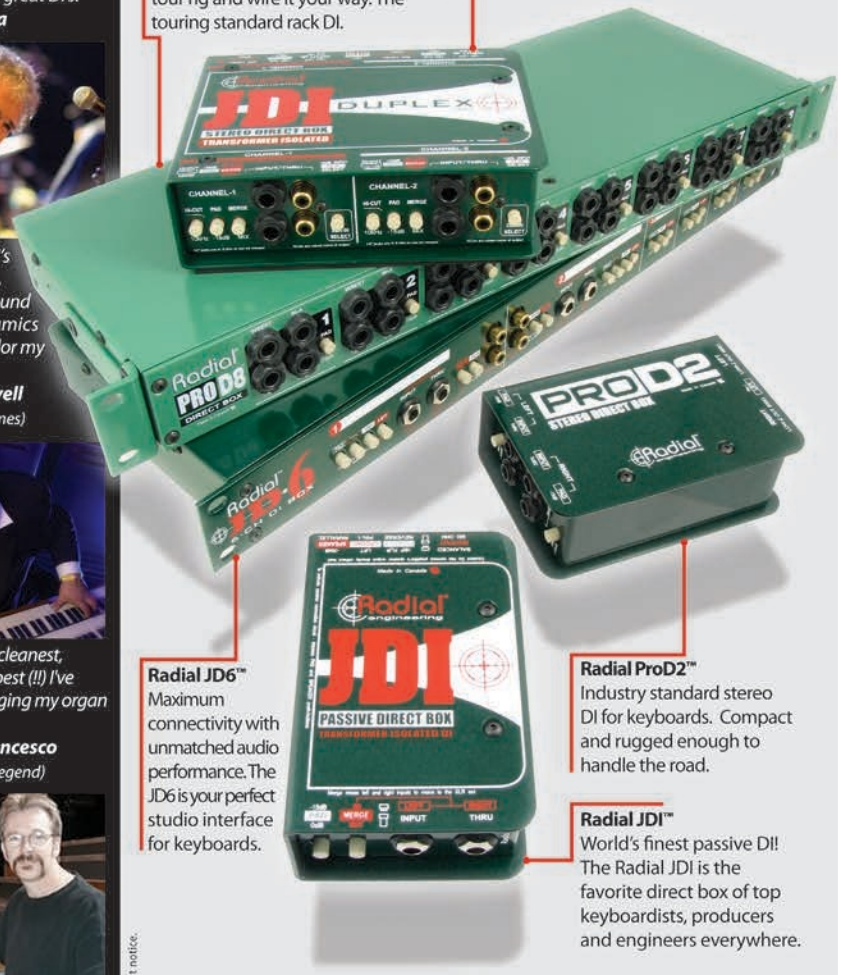


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# PLAY

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# Editor's Note

Can 2014 nearly be over? The barrage of emails I'm already getting about upcoming NAMM appointments would seem to say so. This year marked two big anniversaries in the synth world and I was privileged to attend celebrations for both. This past summer, Yamaha commemorated 40 years of making synthesizers (though the company itself is over 125 years old) with a star-studded party and jam session at their Artist Services facility in Burbank. Then in October, Arturia invited distributors, retailers, and journalists to Grenoble, France, for their 15th birthday. In place of some of the usual material we have in the "Talk" section (including me droning on), here are some pictorial highlights from each event. Find more in slide shows at keyboardmag.com/december2014

Stephen Fortner
Editor in Chief

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## Yamaha 40 Years of Synthesizers

PHOTOS: GILES COMMUNICATIONS

Sending us forget-me-nots, Patrice Rushen jams out on a CP4.

The synth "petting zoo" included the once-coveted flagship of Yamaha's FM line, the DX1. . . .

. . . as well as this very rare VP-1 (different from the VL-1) physical modeling synth.

Left to right: Musical director David "Creatchy" Garfield, Yamaha's Avery Burdette, Prince keyboardist Cassandra O'Neal, Victoria Theodore.

## Arturia 15th Anniversary

PHOTOS: LAURA CHRISTIE

This Minimoog, Prophet-VS, and Yamaha CS-80 are just part of Arturia's collection of vintage synths.

In cooking class, teams of M.I. industry types faced off making appetizers and desserts—which would be served at CEO Frédéric Brun's party that evening.

Color choices and stackable patch cables distinguish the new MicroBrute SE. Espresso at lower right not included.

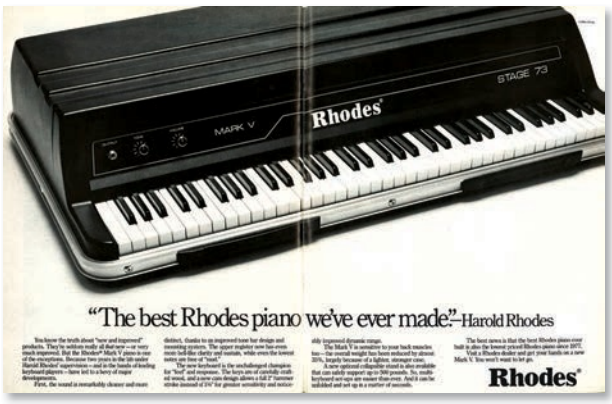
Cable car ride to the Bastille, a nearly 200-year-old hilltop fort overlooking Grenoble, France.

# Key Secrets

## Backward to the Future

The old QuickTime player had a cool looping mode called Palindrome, which caused a sound or movie to play forward, then backward, then forward again. (A palindrome is a phrase like "I dim MIDI" or "taco cat" that's spelled the same in each direction.) This bi-directional looping is great for pads and textures, and for extending otherwise unloopable sounds. You can find such features in Kontakt and Reason as well as some hardware samplers. *Thinking* backward can also inspire creativity. Try reversing a sequence of MIDI notes, or starting your next composition with the melody rather than the chords, or crossing your arms while playing your keyboard. David Battino

# + 30 YEARS AGO TODAY




In the December 1984 issue, Eurythmics' **Dave Stewart** referred to himself as the "musical director" of the group; he was (and is) a master of sounds with the vision to rise above a sea of new wave bands. Back when "Here Comes the Rain Again," was in the Top 10, Stewart's portable rig included a Roland SH-101 synth, TR-606 Drumatix, GR-700 guitar synth, and SDE-1000 digital delay, a Korg Super Section drum machine, Sequential Circuits Six-Trak, Oberheim's DMX drum machine, and the groundbreaking Tascam PortaStudio. Also, **Mark Isham** revealed the process behind his first solo album, *Vapor Drawings*; the new **Chroma Polaris** keyboard got a rave from longtime contributor Jim Aikin; and the **Rhodes Mark V** was advertised.

# My First *Hammond Organ*. Joey DeFrancesco

As a toddler, Joey DeFrancesco first picked out melodies on a toy piano, then at the age of four, the iconic jazz organist encountered his signature instrument. "My father played organ on a steady gig in Philadelphia," says Joey. "I'd heard Jimmy Smith records before, but never saw or played the instrument itself until he brought an organ home." Though Joey was too small at the time to reach the pedals, everything about the organ intrigued him. "Sliding the drawbars in and out to make different sounds, playing with the reverse-color keys, using the rocker switches for percussion, vibrato, and chorus, and turning the Leslie on and off—there were so many fascinating things about it. Any little kid you put in front of one of those things is going to have a good time playing it." Joey vividly remembers that first Hammond experience as a major turning point in his musical growth. "It felt like the sun was shining down and I was seeing cartoon colors," he says. "I still feel that excitement and wonder to this day." For more on Joey, visit joeydefrancesco.com. | Michael Gallant

TRACY KETCHER

# NEW GEAR

BY GINO ROBAIR

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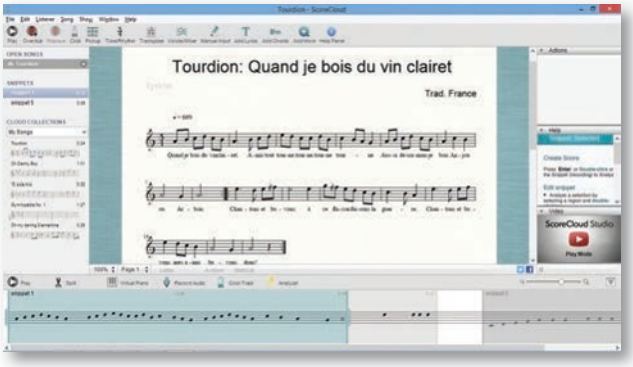
**WHAT** A Eurorack modular-synth case with 98 horizontal pitch units of rack space and a built-in 37-note keyboard. Features include MIDI out, sustain input, glide control, three-octave switch, and outputs for trigger, pitch, gate, and velocity. **WHY** It's a ready-made solution if you need an integrated keyboard for your modular synth. **$795 street | supersynthesis.com**

### M-AUDIO OXYGEN

**WHAT** Available with 25, 49, or 61 keys, these redesigned USB/MIDI controllers feature eight velocity-sensitive trigger pads and transport controls. The two larger models include eight faders. **WHY** Bundled with Ableton Live Lite and several instruments, they provide a low-cost, entry-level studio and gigging setup. **$119–$229 | m-audio.com**

### UNIVERSAL AUDIO UAD-2 SATELLITE THUNDERBOLT

**WHAT** DSP accelerator for "Powered Plug-Ins" that supports Thunderbolt and Thunderbolt 2. Available with four (Quad) or eight (Octo) SHARC processors and a variety of bundled plug-in configurations. **WHY** You need heavy-hitter audio processing and the industry's best recording gear emulations, on the go or on a Mac that lacks internal card slots.
**$999–$5,999 depending on configuration and plug-ins | uaudio.com**




### DOREMIR MUSIC RESEARCH SCORECLOUD STUDIO

**WHAT** A cloud-based music notation program for Mac, Windows, and iOS that offers monophonic audio-to-notation transcription using your device's built-in mic. Exports MusicXML, MIDI, and MP3 files. Several versions available with tiered pricing. **WHY** You want a pared-down notation program designed for collaboration and social media sharing. **Free–$7 per month | scorecloud.com**

### SIMMONS STRYKE6

**WHAT** A portable drum controller for use with iOS and USB/MIDI, featuring six velocity-sensitive pads. Includes kick drum and hi-hat pedals; USB, Lightning, and 30-pin cables; a pair of sticks; and a free iPad app. **WHY** It's surprisingly flexible, especially given that it's so inexpensive. **$129.99 street | simmonsdrums.net**

## MACKIE MIX SERIES

**WHAT** Five-, eight-, and 12-channel mixers with 1/4" and RCA I/O, phantom-powered mic inputs, and EQ on each channel. The Mix12FX includes integrated digital effects. **WHY** They're affordable and they pack a lot of I/O in a small footprint, which makes them ideal for multi-keyboard stage rigs. **$69–$159 | mackie.com**

## WAVES CODEX

**WHAT** Polyphonic, granular wavetable soft synth that runs as a stand-alone instrument or plug-in. Features two oscillators, a step-sequencer and arpeggiator, onboard effects processing, and full modulation capabilities. **WHY** Codex provides a sophisticated synth architecture that also lets you import your own samples and wavetables.
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**WHAT** An audio interface with stereo mics and instrument input for shooting video with your iPhone. **WHY** Using the free Impact app, you can record and edit audio and video, apply effects, and upload to YouTube while getting higher quality audio than your iPhone mics provide—perfect for songwriters and bloggers.
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**WHAT** A rack of four software emulations of the Doepfer MS-404 analog synth module, with macro controls, parameter linking, and support for AU, VST, RTAS, and AAX. **WHY** You can quadruple your sound by using all four of these versatile, yet easy-to-program virtual analog synths in one plug-in instance. **$99 | eisenberg-audio.de**

All prices are manufacturer's suggested retail (list) unless otherwise noted. Follow keyboardmag.com/gear and @keyboardmag on Twitter for up-to-the-minute gear news.

# DR. JOHN

BY JON REGEN

## ON CHANNELING THE SPIRIT OF SATCH

**"YOU'VE GOT TO LISTEN TO *EVERY* KIND OF MUSIC,"** LEGENDARY NEW ORLEANS singer, songwriter, and multi-instrumentalist Dr. John says from beside a nine-foot Yamaha concert grand piano. "Because if you don't listen to everything, how the hell are you gonna *play* everything?"

On his new album *Ske-Dat-De-Dat: The Spirit of Satch*, which debuted at Number One on the Billboard Jazz Charts this past August, Dr. John (*née* Mac Rebennack) proves he has indeed heeded his own advice, offering up a mesmerizing, multi-faceted salute to the iconic New Orleans musician Louis Armstrong. From the harmonized, vocal grace and backbeat-drenched reading of "What a Wonderful World," to surprising renditions of "World on a String" (featuring Bonnie Raitt), "Mack the Knife" (with rap vocals by Mike Ladd), the album is as funky and unpredictable as the 73-year-old Good Doctor himself.

During a recent concert and promotional tour, Dr. John and co-producer and arranger Sarah Morrow stopped by Yamaha Artist Services in Manhattan to talk about the making of his new album, and how it all started with Armstrong speaking to him in a dream.

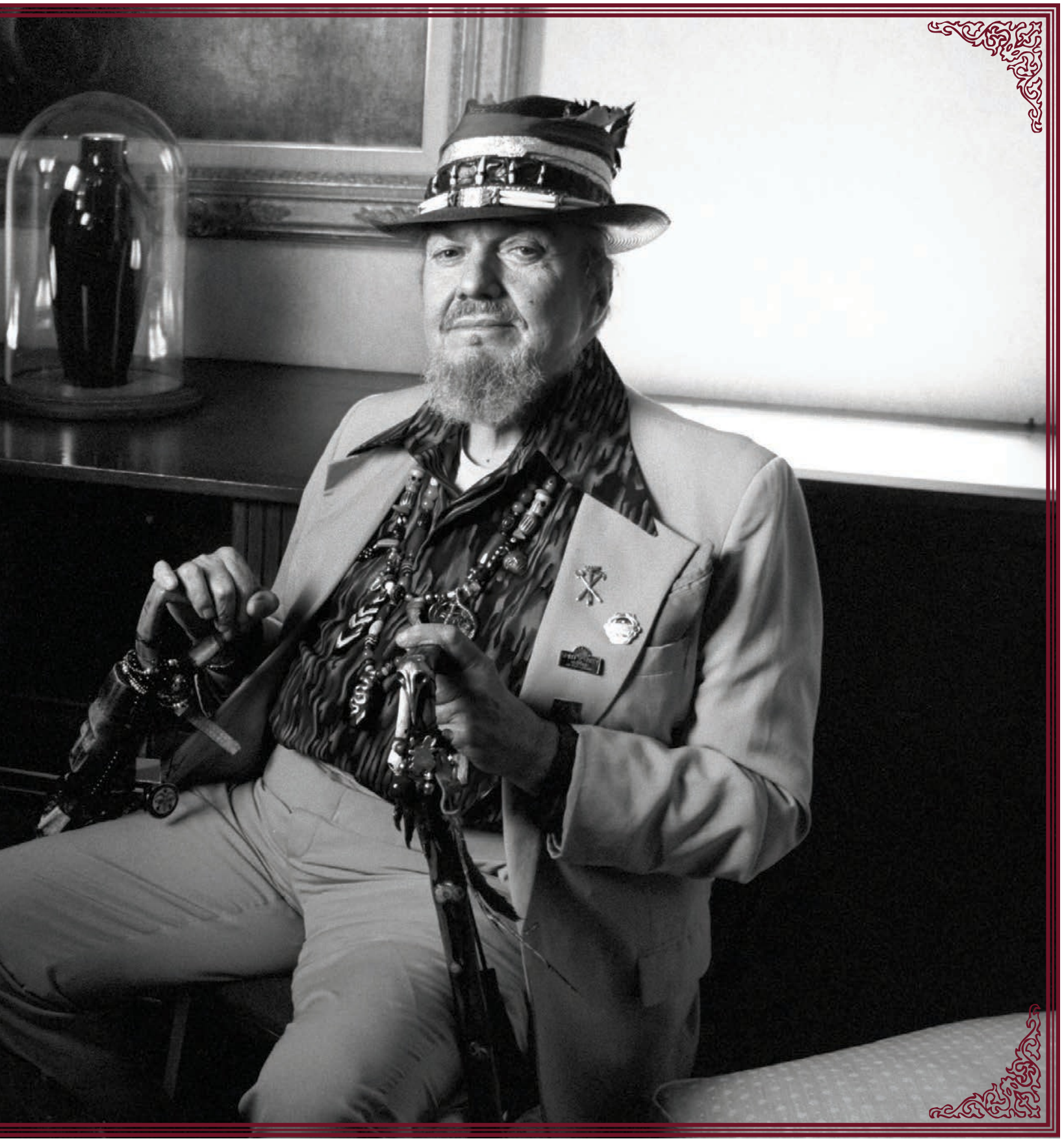
**In the press materials for your new album, you say, "Louis Armstrong's the most famous guy that ever came out of my neighborhood." Can you talk about the impact Louis had on you and your music?**

**Dr. John:** I'll always remember that my father would say to me, "That's where Louis Armstrong was born," every time we would walk past Jane Place in New Orleans. My father *loved* all of those cats, whether it was Louis or musicians like Kid Ory and "Frog" Joseph. And even though I didn't know a lot about music as a little kid, what I did know was that Louis Armstrong's records were *special*. I loved songs of his like "Gut Bucket Blues" and many others. So his records meant a lot to me.

**You have been quoted as saying, "Louis' spirit came to me and told me to do something. That's how this whole thing started." So the idea for this album came to you in a dream?**

**DJ:** Yeah. He came to me in a dream and said, "Do my music *your* way." And that hit me, because the only time I knew Louis is when we were both being managed by Joe Glaser. I had signed with Joe in 1968, the same year that B.B. King signed with him. Louis only lived four

JACOB BLICKENSTAFF WWW.33-13.COM



or five years after that. So to me, I was really following directions from Louis. [*Laughs*.]

**Sarah Morrow:** Each song on the album is different. Dr. John asked me to help him produce this project with the main goal being that he wanted to make it *fresh*. In the beginning, it wasn't his idea to make me the co-producer and arranger. He just wanted me to help him arrange a few of the songs. But as time went by, he started liking what I was doing. And the collaboration evolved.

**Before this album, had you played much of Louis' music before?**

**DJ:** I played *some* tunes of his. In fact, I had a video disc of Louis Armstrong performing "Do You Call That a Buddy?" for the troops during World War II. I play that song live now, but I've completely changed it from Louis' version. So I had played some of his songs, but I had never put together an entire *collection* of his music before. That was the issue.

**What you did with "What a Wonderful World" is like no other version of that song I've ever heard. It's got harmonized vocals, churchy Hammond organ, and your signature bluesy piano fills. It's like a master class in how to cover a song and make it your own.**

**SM:** I think *this* particular song was actually the basis for the entire album. It was the first song that Dr. John knew he wanted to record, and also one where *he* did the rhythm arrangements. Then I arranged the horns and the other instruments, and we both decided together to add the Blind Boys of Alabama.

**Almost every element of that song has been completely re-imagined. How did you go about re-interpreting such a well-known classic?**

**DJ:** Well, when I heard Louis Armstrong's version of that record, there were parts of it I liked, and parts of it where I thought, "I hear some other s*** here!" [*Laughs*.] So that's where I took it. I mean, Louis did say to do it how I heard it!

**SM:** As that song evolved, we tweaked it *together*. We'd try things like taking two bars out at a certain point, and other ideas. It was fun to arrange for Dr. John and whoever the guest artist was on each particular track. For me, it was about finding both the *commonalities* and the differences in their voices, because Dr. John is so diverse, so far out, and so original. In terms of the drumbeat on that song, he knew he wanted it to be a "straight four," so that's what he specifically told the drummer, Herlin Riley. It was also incredibly important to have Herlin on the album. He brought our ideas to life in a way that only he knows how to do, with his New Orleans roots. So it was exciting for me, because anything was possible. I wanted to push Dr. John into new territory, but at the same time, to be true to who he is as an artist.

Play all music with the same respect you have for any one music you might like.

**Your version of "Mack the Knife" is a funky and totally modern take on a classic. How did the reinvention of that tune come about?**

**DJ:** Sarah put a Hellfire chart on it! I heard it and thought, "This is slamming." I loved it.

**SM:** There are a few tracks that have a different rhythm section on them because we were going for different, contemporary kinds of grooves. So on "Mack the Knife" we used Jamison Ross on drums.

**That track also features Mike Ladd's rap vocals. Is this the first time you collaborated with a hip-hop singer?**

**DJ:** No, I did a record years ago called *Jet Set* with Duke Bootee, alias Ed Fletcher. That record was actually climbing the charts for a while!

**SM:** Dr. John did some stuff with hip-hop artists way back in the 1980s! It was my idea to use Mike, as I actually played on his record and we've done a lot of live shows together in Europe. So when then idea came up to use a rapper on the album, I knew it had to be someone as profound as Dr. John. Not just somebody with a big name, but someone that would say something with *meaning*. Otherwise, it wouldn't work. That's why Mike was perfect.

**"Mack the Knife" has elements reminiscent of some of your more funk-oriented standards. Can you talk about how funk music has influenced your sound?**

**DJ:** I think all funk music goes back to the 1950s when New Orleans drummers like Charles "Hungry" Williams and Earl Palmer had started doing things way funkier than anyone else in the country. That led towards Stax and other record companies picking up on that kind of sound.

**SM:** I think it's important to talk about how on this song, Dr. John knew exactly what he wanted to do vocally. Everything grew out of his vocal concept. He knew he wanted to do his own speaking, rap-infused version of "Mack the Knife." And then he said, "Sarah, make it work!"

**When you are working on a song, does everything start with the melody or the vocal for you?**

**DJ:** I think each song has a completely different "maneuver" about it. For instance, a lot of the songs I wrote with Doc Pomus were in a completely different zone than the ones I wrote with Bobby Charles. Every situation is different.

**"World on a String" features a great duet with Bonnie Raitt. How did the collaboration with her come about?**

**DJ:** We had little arguments about it! [*Laughs*.] But Bonnie was way cool. Her spirit told her what to do.

**SM:** Mac knew he that wanted to do something with Bonnie, but they had a hard time choosing a song. We were on one side, throwing out ideas, and Bonnie would say, "No, I'm not into that one." But in the end, both of them wanted to honor Louis Armstrong, so it was important to find a song that worked for both of them together. And once they chose it, they told me, "Now go do something with it!"

**"Motherless Child" is another unexpected take on a standard. What is that crazy keyboard sound you use on it and in the solo?**

**DJ:** That's the RMI Electra-Piano. I used it back on the *In the Right Place* album, as well as the *Desitively Bonaroo* album. But my original RMI had a whole lot of glitter in it, because I used to throw glitter out on-stage. It just got into the keyboard, and made it disturbed. So we didn't use that particular instrument. In fact, I don't even have that keyboard anymore. Now I travel with a Nord Electro, and it's an interesting device to play songs like that one and "Right Place" on. I like it. And it's good for the gigs, because I can get two or three different sounds on it.

**SM:** Mac's engineer Chris Finney evidently spent years looking for an RMI that worked. They're evidently hard to find. But I will say this: Mac does tweak his RMI sound. He has his own

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**Besides the RMI and the Nord, are there any other keyboards you are drawn to?**

**DJ:** Doc Pomus left me his Rhodes that he had at his house. We wrote a million songs on it, but I have never played it because it's out of tune. That thing drove me crazy!

**There aren't a ton of piano solos on the new album. Was that a conscious decision?**

**DJ:** Yeah. I really wanted to have a lot of trumpet players to capture the spirit of Louis. And I think I got all of the best cats for that.

**On "Nobody Knows the Trouble I've Seen," there's a beautiful piano intro. Then that tune modulates up and we have a piano solo with single note lines and bluesy piano fills built on the third, flatted third, and root. Can you talk about the way you approach taking a piano or keyboard solo on a song?**

**DJ:** One of the things I like to do is *not* think too much. If I think too much, I'm interfering with what the spirits get me to play. I learned this from [jazz drummer] Art Blakey. He said to me, "Don't think too much!" It worked for him as a drummer, so I try never to get in the way of something. I just let things flow.

**The song "Wrap Your Troubles in Dreams" is an interesting showcase for how you *accompany* your own vocal on piano. On it, you play an octave above where you are singing, staying out of the way of the lyric.**

**DJ:** On that song, one of the things I was leaning on was Herlin playing that little 12/8 beat, like his grandpa [New Orleans drummer] Frank Lastie used to play on the drums. I love 12/8 time—it always feels good to me. That's why Ray Charles cut so many records in 12/8. It's amazing when you play something that feels *connected* like that. It's like going whatever church you belong to.

**SM:** I think what you caught on to about the way he accompanies himself is very much spot-on. Whether he's *consciously* aware of it or not, he's always aware of leaving space.

**Can you talk about some of the pianists that helped shape your style?**

**DJ:** The guy that backed Big Joe Turner up was the guy that made me want to play the piano. His name was Pete Johnson, and I loved him. He was inspiring to me.

**What was it about his playing that moved you?**

**DJ:** There was a record called "Piney Brown Blues" by Joe Turner, and when I heard Pete Johnson on it as a little kid, I thought, "This guy is doing something *amazing*." I think it would still move me today. There were other piano players too, like Milt Buckner, who played with Jimmy Scott in Lionel Hampton's band. He was a bad-ass, and he was playing the Organola, which had a piano and organ sound at the same time. He blew me away. So I heard all these kinds of things, first when I was playing guitar. Later on, I tried to transfer them over to piano.

**Were there any New Orleans piano players in particular for whom you had a particular affinity?**

**DJ:** I remember working gigs with Huey Smith, James Booker, Art Neville, and Allen Toussaint. I worked with all of these guys while I was playing guitar. My second guitar teacher, Walter "Papoose" Nelson, told me, "Watch the piano player's left hand! That'll give you a clue what the chord's gonna be." So I had some ideas from watching whoever the keyboard player was on a session. That was inspiring to me in a weird way.

**I remember your Hammond organ work from 1988 when you guested on Harry Connick Jr.'s album *20*. On this album, you hired *other* musicians to play organ. Why?**

**DJ:** Because I liked the other two organists we had better. Bobby Floyd is the guy that's been working with the band, and I also love Ivan Neville, who's a bad m***f***er, too! James Booker taught me how to play organ for gigs at clubs around New Orleans like Madame Francine's, but he never got past teaching me how to play the foot pedals! So I never learned how to play like Jimmy Smith, where you could walk bass lines with your left hand and play roots with your foot. I remember one time, James Booker took me to see Korla Pandit, who was a bad-ass organ player. He played a solo with no hands—just with his feet, on the jazz standard "Caravan." I was like, "Wow!"

I always felt like guys that could play the organ in a *number* of ways had an advantage over what I could do. But the secret ingredient to me that makes everything work on the organ is playing "church." To me, if you can't do that, you might as well not play at all. Because I think that's where organ players are supposed to come from. From the time I worked with Billy Preston in Los Angeles, to working now with Bobby Floyd, it's the same mold for organ: playing in church. And it's a spiritually hip thing to do.

**What are some things that keyboardists should think about when constructing their own solos?**

**DJ:** One of the things that's important for musicians to do, especially when they're young, is to try and push themselves into new places. When I was a studio musician back around 1954, there were a lot of guys that pushed us youngsters. They would say, "You've got to play *all* music with the same respect you have for any one music you might like." So I learned how to do it on the gig. But it's never an easy route to take.

**When you were developing your piano style, what routines or technical exercises did you practice along the way?**

**DJ:** You know what? I studied guitar lessons for years, but I never really had a keyboard teacher. When I first started doing sessions, I think the first record I actually played piano on was Leonard James' "Boppin' and Strollin" back in 1957. When I hear the record, I can hear I was *on the way* to doing something different, but I didn't have it quite down just yet.

**You were getting your concept together?**

**DJ:** I didn't have a concept, but I was working on it! [*Laughs*.] Spiritually, I knew that the old timers like [drummer] Earl Palmer or [saxophonist] "Red" Tyler would show us the way. The history of rock 'n' roll starts off with those two guys and they didn't remember half of the hit records they played on! They were just trying to survive and play gigs.

**What would you say is the most important thing a young keyboardist should keep in mind when they are playing and learning about the music of New Orleans?**

**DJ:** Well, nobody ever plays good that's not locked in with the drummer. If you're not locked in with the drummer and the bass player, what do ya got? The best thing I could say is that music has a life and a mind of its own. It's spiritually correct. If you don't see it in your heart, and you don't see into your spirit and soul, then you're missing something. I've seen so many musicians that are *almost* slamming, but they're not—and that's really sad to me.

I love music and I feel good when I'm playing it. I think the key to having a successful career in music is to listen. If you're open-minded, there's no reason you can't be a slamming musician. That's what that dream I had was about. I thought, "Wow. Louis just gave me an order to do something *my* way. And it's cool!" ♫

- Exclusive! Dr. John plays at our interview.
- The making of "Ske Dat De Dat."

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Ben Stivers (left) and Doug Emery at sound check with Akai MPK88 controller, M-Audio Axiom Pro above Nord Stage 2, and Aviom A16-II personal monitor mixer. Not shown: The Korg NanoKontrol that Ben uses to send all his performance control messages to Apple MainStage.

# ON TOUR WITH BARRY GIBB

## DOUG EMERY AND BEN STIVERS RE-INVENT THE SOUND OF CLASSIC BEE GEES

BY ROBBIE GENNET

**THE DYNAMIC KEYBOARD DUO OF DOUG EMERY AND BEN STIVERS BEGAN** their musical journey studying jazz at the University of Miami and quickly became sought after on the Miami music scene. Stivers met the Gibb brothers in the early 1990s, working with them in their studio and eventually on their live shows and TV performances. Along the way, he and Emery formed a symbiotic partnership that is rare in the keyboard world and has served them well with major Latin acts such as pianist Di Blasio and pop star Chayanne. For Barry Gibb's first solo tour, Stivers' and Emery's skills were put to the test, and *Keyboard* got the inside scoop.

**Blue Weaver was on keyboards for the iconic Bee Gees tunes. In digging back through this music, what did you discover about him?**

**Ben Stivers:** He's more responsible for the sound of their music than maybe he gets credit for. It's his harmonic vocabulary, especially on a song like "How Deep Is Your Love," with its Rhodes part and all those extensions. The way Barry plays the chords on his guitar, he doesn't have a lot of major sevenths; there's not a lot of *sus* chords. It's much more triadic. So all that color and flavor, that's all Blue. All that disco stuff—"Night Fever," "More Than a Woman"—that's all him.

**In accessing the catalog and prepping this tour, how did you guys split the keyboard duties?**

**Doug Emery:** Ben and I have worked together a lot. So, because we've done other tours together, we kind of have a system.

**BS:** It's a rare thing for a keyboard player to find. I only know maybe one or two other guys that I like playing with, because most of the time you get stepped on. We're not used to playing with other keyboard players necessarily. And it's difficult to find a guy like Doug that is both harmonically and texturally aware—sonically aware. On the Di Blasio gig, there were times in the show where he'd be just talking and we'd improvise a background, so we developed a vocabulary between the two of us. I know he's not going to jump all over what I do and that he's going to leave me space, and vice versa.

**DE:** The other thing is, neither one of us is trying to prove anything at this point. We've done this together long enough; I don't need to prove anything to Ben, and that helps.

**BS:** If we're out to prove anything at all, it's how good to make the whole. I don't want to stick out, but I want people to go, "Holy crap, that was amazing what you guys did!"

**What stands out about when you first started working with the Bee Gees?**

**DE:** Interestingly, they weren't that into retro sounds. It's been a trend now for 20 years at least. But because they lived through it, it just sounded old to them. So especially when I first started, they weren't all that interested in having authentic Rhodes or analog synth sounds—they'd done that already. Now that's kind of changed because the

STEPHEN GIBB

imitations have gotten better. [Barry Gibb] realizes that it doesn't sound old—it sounds like *the song*.

**BS:** Right. One thing that changed in terms of distributing parts is that when I did the gig when Maurice Gibb was still alive, he would play piano and strings on a lot of stuff.

**How was Maurice as a piano player?**

**BS:** He was great. He played all the parts. He knew the songs. He was really good because there are a couple of tricky tempos, especially on songs he starts alone. And singers get really particular about the cadence of lyrics. It may feel right to you, but it took me a minute when I first started taking over those duties to really feel where some of the songs need to sit. For example, "Lonely Days" has tempo changes and that's all me. It used to be all Maurice. He knew what it was supposed to feel like.

**Did you try to re-create the rig Maurice used, for this tour?**

**BS:** No. They'd stopped playing together, and Maurice died in 2004. So everything has changed since then. The rig basically had to be built from scratch, and the way things are these days, it was a pretty easy decision to go virtual. The sounds are just better and it's so much easier to program. For my rig, I use a Korg NanoKontrol as my MIDI brain. So literally any keyboard can show up in the backline—anything with 88 keys on it and a MIDI out, and I'm cool.

**Are you just using one keyboard?**

**BS:** Yeah. I've got all the splits mapped and all the controller information on the NanoKontrol. So I show up with the Nano, laptop, interface, and that's it. Since we've been doing these different set lists, just cataloging sounds and stuff, I've got a folder of Bee Gees patches and I can pull them in and out of my concert in [Apple] MainStage as needed.

**DE:** There's an [M-Audio] Axiom that I run. It's triggering two systems that are both running in tandem, but they're not synced in any way, other than the fact that I've started them at the same time. I have one of those Radial SW8 audio switchers. So I have a footswitch by me. If I need to switch to the B rig, I press a footswitch.

**BS:** There's a separate computer running Ableton Live—actually two. Doug has two computers and I have one. We each have a laptop running MainStage and he has two Mac Minis running Ableton.

**Aside from the Axiom, are your rigs identical?**

**DE:** Mine's the same. The only difference between his rig and my rig is I'm also using a Nord Stage. I'm a Nord guy.

**Are you using the Nord's internal sounds or are you using it as a controller?**

**DE:** I'm using it primarily as a controller.

**BS:** But he plays organ and Wurly.

**DE:** And Clav, and that's coming from the Nord. I do a lot of orchestral stuff on this gig, which is all coming from MainStage.

**Most Bee Gees hits are known for their great string arrangements. What are you using for strings on this gig?**

**DE:** It's a bunch of stuff: some Kontakt, some Omnisphere, and that new Logic analog Retro Synth. I've done this a lot, the string thing, so I know what I need to build. One part of that is always to have some sort of analog sound underneath it all.

**It's amazing that for the breadth of sounds and styles over those decades of music that you can pair everything down to the laptop, MainStage, and the controller.**

**BS:** We're using a pretty wide range of plug-ins, though. Doug's rig has Omnisphere and I have the Arturia stuff that he doesn't. Everything else is the same. We both have the Native Instruments [Komplete] bundle as well.

**Do you have a backup rig running like Doug does?**

**BS:** I haven't needed it. That's the fear, but mine's never failed. I had more problems when I started the gig using dedicated hardware. My rig was a Kurzweil K2500 and a rack with a Roland D550 and JV-1080, a Korg M1R, two Akai S3000s, and a MIDI router. That thing was a nightmare. I'm much more stable now with MainStage and a small PreSonus audio interface.

**How do you ensure you're not overtaxing the system?**

**BS:** You have to think about what you need to accomplish and programming it efficiently. I'll set up an effects bus with one reverb for the whole concert. It doesn't have to be in every track. I love [Logic's convolution reverb] Space Designer, but I don't need it for the glockenspiel on "Words." I can use a simpler reverb for that. You have to think about what you're trying to build.

**Let's say you have a specific sound on a song that needs a certain slapback . . .**

**BS:** I have a delay on the Rhodes, and I've assigned enough controllers to it where I can tap in tempos, change the delay time, or just turn it off. So I don't need 15 instances of that for different songs. I can open up the delay and twiddle knobs as if I had a delay pedal on the floor.

**DE:** What helps is the fact that in MainStage every patch can have its own tempo. There's so much you can do within the pre-programming to take care of a lot of things where normally you would have to have multiple versions. The other thing is, since the [Intel] Core i-series processors came out, things have been a lot more stable. That, and 64-bit [processing] have made a huge difference.

**What would you like to see as your next-level gig rig?**

**BS:** I'd like a hardware-based synth with a brand-new sample library because they've got to be able to fit more on to a chip now. And I think, more self-contained units. Right now, this is a cool rig, but I live in New York and do a lot of work there. I don't always like bringing the laptop because there are still a lot of connections to make. Usually I'm bringing a keyboard and a laptop and the interface, and plugging it all up and getting all my sounds out of the laptop. So, something along the lines of what Muse Research is doing—boxes that have a built-in processor, plug-host, and audio and MIDI interface—but small. It wouldn't take much to throw a decent processor inside a keyboard so you could hook up a monitor and look at MainStage. That could be something for Apple. Somebody's got to be able to design a host that can stably run everything. Right now MainStage is probably the best at that—or the Muse Receptor.

**What are you using for piano sounds on this gig?**

**BS:** I'm using Ivory for acoustic piano. I'm playing piano and Rhodes and brass; Doug is playing strings and synths.

**Which songs are your favorites to perform?**

**BS:** "How Deep Is Your Love" is a great song. I get to play the Rhodes part. Back in the day I could get decent phasey tremolo Rhodes. The sound that I have now is pretty darned close. I really dig it.

**Is it an internal sound, or are you using effects pedals?**

**BS:** No, the effects are all internal. I'm using a plug-in phaser and a plug-in tremolo. It just works.

**DE:** Ben is really good with that stuff in his hands. I think some guys using the plug-in thing, it would be like you're making some sort of compromise. Ben's really good at dialing in sounds.

**BS:** Right back at you. It's fun, and with the NanoKontrol, I have one button that turns the phaser on and off and one button that turns the tremolo panner on and off. And then I have control over the panner from two knobs. So it's a lot like having a stompbox . . . There are other songs I like just because the parts are so rhythmic: I really like "Guilty." That's a killer Richard Tee Rhodes part on that. And I like playing "One." It's a little more mechanical. It almost sounds like Scritti Politti.

**DE:** I think for me, because it's a killer tune and I just think it's beautiful, we do a song called "With the Sun in Your Eyes." It's just me and Ben and Barry, and it's just gorgeous.

**BS:** On the record it was Mellotron, I think. But Doug does it on real strings and he's kind of elaborated the part into some really pretty orchestral stuff. There's a lot of moving lines. It's pretty amazing what he's done with it.

**DE:** And Ben brings in the horn stuff so it's really nice. It's a really beautiful moment of the show.

**What about of the funkier side of things?**

**DE:** I love "Jive Talkin'." I'm playing the Wurly on it. And I'm playing the synth line, and I love that sound.

**BS:** I get to play the bass.

**Since there's a bass player for the show, what happens during the parts when you play synth bass?**

**BS:** On that tune, the gig existed before I got it, and we actually double the part—we play the same thing, leaving space for each other to play fills. There's another song in the set, one we hadn't been playing: "Nights on Broadway." In the 20 years I played with Barry, he'd never done it. It's very high, very taxing on his voice. We decided to pull it out because Fallon and Timberlake had been parodying it. So it's back and that also has synth bass. I started goofing around with that but the bass player got that Electro-Harmonix pedal, the bass synthesizer. It's not really a synthesizer; it's an envelope filter and an octaver. But he was able to get really close to the sound on the record.

**And what do you do during that song?**

**BS:** I do piano. There's a fairly busy piano part. If you listen to the record of that, the piano on it is hard-compressed and bright. So I have a compressor when I call up my piano sound. Once again, one of the buttons on my NanoKontrol kicks in a compressor and a bit of EQ to make it that bright kind of rock aggressive sound. It's subtle but it makes a huge difference.

**DE:** I think that's been another discussion in the band: It's easy to make some of the stuff a little too pretty. So that's been a big point of discussion. How do we make this a little less "soft rock"?

**BS:** The old records are not that quantized and not that slick. And that's the beauty of it. It's rock music.

**What is it like working with Barry Gibb?**

**BS:** He's the best cat ever.

**DE:** I've really come to care for the guy, and I have to say, it's been really great to see him accepted. There's a resurgence of respect for what he has done.

**He must feel amazing, seeing the response.**

**DE:** He's gotten overwhelmed sometimes.

**BS:** It's been more than any other gigs that I've ever done with him or anybody else: just the emotion of it. He's able to be really vulnerable. It's really raw. I've played with acts that were bigger at the moment or maybe had hits at the moment and crowds that were maybe more crazy or nuts, but I've never felt this level of empathy and emotion. It's pretty amazing. ♫

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# Joe Sample

1939—2014

COMPILED BY JON REGEN

**ON SEPTEMBER 12 OF THIS YEAR, WE WERE SURPRISED AND SADDENED TO** learn of the death of Joe Sample, a founding member of seminal jazz-funk fusion combo the Crusaders. We'd had the privilege of interviewing him in 2010 during a tour with the original Jazz Crusaders, plus seeing him perform with Casio at the past couple of NAMM shows, and were always struck by not only his stellar musicianship and unique style, but his generosity of time and spirit as well. The shorter list would be one of keyboardists he *didn't* influence, so we put out a call to music's best and brightest for remembrances. Find even more on our website. We'll miss you terribly, Joe!

Powered by Joe Sample's funky and harmonically rich writing, the Crusaders were a huge influence on the early Jeff Lorber Fusion. At that time you could hear the sound of *Southern Comfort*, *Scratch*, and later *Chain Reaction* coming out of speakers wherever you went. I even hired the studio, Hollywood Sound, and their engineer to record a couple of my albums because I was such a big fan of their sound. I had a chance to talk to Joe a few times at length and found him to be as charming and he was serious about his music. From those conversations, I could tell how important his Houston roots were to him—authentic soul and funk were paramount. JEFF LORBER, PIONEERING JAZZ-FUSION KEYBOARDIST

Joe's sense of harmony, particularly, and his clean, non-legato right hand were what attracted me to his playing. He was particularly demanding of any guitarist or second keyboardist—I learned to stay out of his way while accompanying him during his solos. I'm proud to say he never gave me "that" look! We will all miss him! PHILIPPE SAISSE, GRAMMY-NOMINATED PIANIST

I was so sad to hear about the passing of one of the baddest pianists, Joe Sample. I very much admired how he didn't take any B.S. and just spoke his mind. I also learned a lot about music just by listening to his stories, as he was an incredible storyteller—and so funny. With that instantly recognizable staccato and percussive style that still flowed so smoothly, thank you for inspiring us to groove harder, Joe! BRIAN CULBERTSON, RENOWNED JAZZ-FUSION KEYBOARDIST AND DIRECTOR OF NAPA VALLEY JAZZ GETAWAY

My father had the Crusaders' *Southern Comfort* record on heavy rotation when I was growing up. It was the perfect blend of funk, jazz, rock, and R&B, all served with a perfect dose of taste. Joe's masterful Fender Rhodes was the centerpiece. Later I discovered his *Swing Street Café* record co-led with David T. Walker, and I lifted every lick and note I could. One of the best live music nights I ever experienced in L.A. was sitting two feet in front of Joe Sample's Rhodes at the Baked Potato. I am truly glad I got that close to greatness. What class. JEFF BABKO, KEYBOARDIST ON *JIMMY KIMMEL LIVE*

Navigating the harmonic twists and turns of "In All My Wildest Dreams" was a rite of passage, like Captain Kirk's *Kobayashi* Maru scenario. You just can't win! ANDY BURTON, KEYBOARDIST FOR JOHN MAYER

I got to know Joe Sample's work by discovering the Crusaders right in the "sweet spot" in the 1970s with the albums *Chain Reaction*, *Southern Comfort*, and *Southern Knights*. His work had the perfect combination of groove, melody, and jazz hipness. His style was the perfect foil to the other profound "fuzoid" electronic jazz that was happening then; the Cursaders bridged the gap between the old-school hard bop style and the new sound of fusion and jazz-rock. They were just commercial enough to sell, but also hip enough to be respected among musicians. Plus, they were funky as hell! Beyond the Crusaders, Sample had a command of straight-ahead jazz and funk, and he played his butt off around the world for decades. His intro riff on "Put It Where You Want It" is instant jam session magic. How many artists can you say that about? SCOTT HEALY, GRAMMY-NOMINATED JAZZ COMPOSER AND KEYBOARDIST ON *CONAN*

More tributes, and our 2010 video interview with Joe Sample.

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# Kandace Springs

## JAZZY KEYBOARD SOUL

BY JON REGEN

**KANDACE SPRINGS WAS RECENTLY SIGNED TO BLUE NOTE RECORDS AFTER** singing just one song for label president Don Was. Dubbed a "suave songstress" by the *Wall Street Journal*, the 23 year-old marries jazz, soul, hip-hop, and classic keys into a sound all her own. You can find her as "kandacesprings" on both Twitter and Facebook.

**HOMETOWN:** Nashville, Tennessee

**HOW I DESCRIBE MY SOUND:** Classic soul and jazz with a modern twist of hip-hop.

**MUSICAL TRAINING:** When I was ten years old, a close friend of my family fell on hard times and had to move. She had a very old upright piano and she asked if my Dad would keep it at our house until she got back on her feet. I heard the Beethoven song "Moonlight Sonata" and I started to try and play it on the piano. My Dad heard me and then started to show me how to play. After a while, he arranged for me to have lessons with the Wooten Brothers and also some basic classical training. About three years later, that friend came and took her piano back. I was so sad. Then a friend of my Mom's gave us a Korg [digital] piano and to this day, it's one of my favorite pianos to play.

**FIRST GIGS:** The *Kids on Stage* summer music/arts camp program [kidsonstage.com] and playing with my father's Nashville soul band The Scat Band.

**MUSICAL INFLUENCES:** My father, Ella Fitzgerald, Norah Jones, Nina Simone, and Erykah Badu.

**WHAT I'M LISTENING TO RIGHT NOW:** Sade, Sam Smith, and Jhene Aiko.

**MY BIG BREAK:** When I was a teenager, Evan Rogers and Carl Sturken from SRP Records came to Nashville to check me out because a friend of my dad's told them about me. They offered me a production deal, but I wasn't ready at that time. Three years later after paying my dues (being a valet attendant during the day and playing at the lounge of the same hotel at night), I decided that I was ready. I called Evan and he answered the phone and said, "Are you ready to be a star?" My other big break was when I auditioned for Don Was, the president of Blue Note Records, at Capitol Studios in Los Angeles. After playing one song, "I Can't Make You Love Me," he offered me a record deal.

**LATEST ALBUM:** *Kandace Springs*, my new EP, out now.

**FAVORITE KEYBOARD GEAR:** Rhodes and Wurlitzer electric pianos, plus Nord, Yamaha, and Korg keyboards.

**WHAT'S NEXT:** Performing on the *Late Show with David Letterman* and *VH1 Soul*, plus tours with Ne-Yo and Chance the Rapper.

**ADVICE:** Work hard, never give up, and do what you love. The world likes originality. A lot of people will want to give you advice, so stay humble and listen. You might get something out of it, but in the end stay true to yourself. ♫

SOUNDCLOUD Kandace Springs: "Love Got In the Way"

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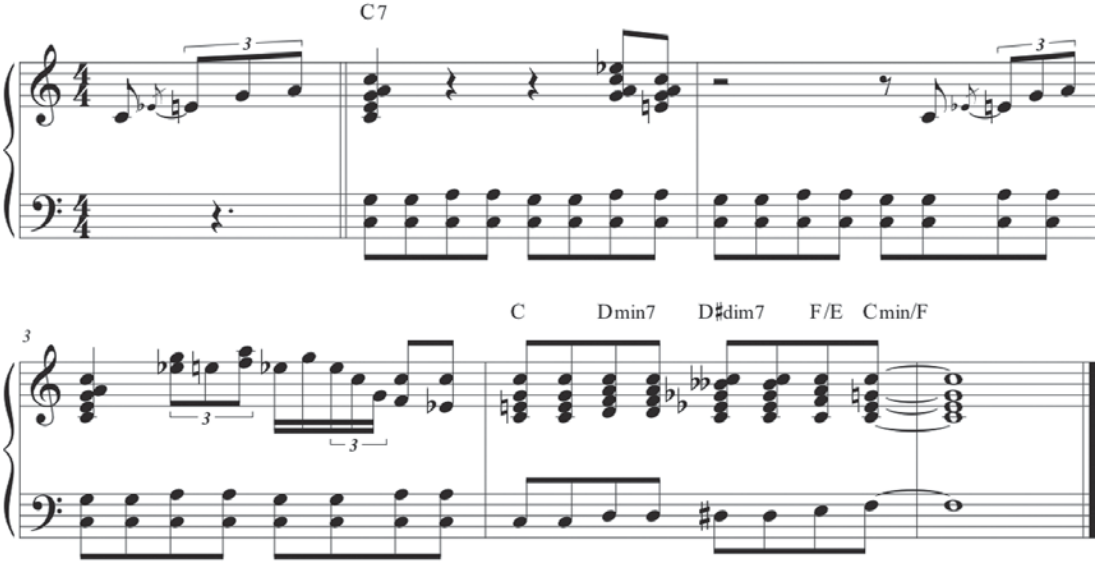
WALTER POPP

# 5 WAYS TO PLAY LIKE Dr. John

BY BRIAN CHARETTE

**WHETHER MAC REBENNACK (A.K.A. DR. JOHN) IS PLAYING HIS TRADEMARK NEW** Orleans-style piano, Hammond organ, quirky keyboard parts, or guitar, he always plays groovy lines dripping with funk and soul. This month we'll examine his signature sound celebrated on the album *Ske-Dat-De-Dat: The Spirit of Satch*, which salutes pioneering jazz musician Louis Armstrong and includes guests such as Bonnie Raitt, Nicholas Payton, and the Dirty Dozen Brass Band. Here are some exercises to get you playing like the Night Tripper.

**Ex. 1.**




## 1. Piano

The instrument most associated with Dr. John is unquestionably the piano. New Orleans piano playing is filled with smears and slides, as seen in **Ex. 1**. I've actually built in a modulation up a fourth in the last bar so you can seamlessly transpose the exercise. I've also added a boogie-woogie left-hand part for solo playing, but when you play with a group you may want to play more simply to leave space for the other musicians. Dr. John will often throw in a couple of chromatic left-hand riffs to give emphasis to those in the right hand. The motivic material in the first two bars of the right hand here comes from the major and minor *C* pentatonic scales. At the end of bar one we grab a few of the notes together to make some funky chords. (Try to harmonize your blues melodies with notes underneath them in this way to get closer to the "New Orleans" sound). Beat 2 of bar 3 has a very popular New Orleans "turn" that may be the most important lick in this style. Play with a lazy, rolling motion. Note that the last bar harmonizes a bass line that walks up to the *IV* chord.

Ex. 2.

Ex. 3.

Ex. 4.

## 2. Hammond Organ

Dr. John is also known to wail quite well on the Hammond. **Ex. 2** illustrates a typical organ pad you might find on his recordings. Start with a drawbar setting of *88 8000 006* and experiment from there. Pull out a few black drawbars too for really cool reedy sounds. In Ex. 2, the voicings are simple and held for most of the bar, usually changing on the last eighth-note of the bar. The chords are meant to be supportive but subtle. Notice in bar 4 how a triad that starts on the sixth scale degree of the root, *A*, yields a very interesting altered chord. The end of bar 4 also has a gentle riff taken from the *C* major pentatonic scale; pepper these lightly between your chords. (I've put in a bass line so you can see the harmony in action).

## 3. Wurlitzer

The Good Doctor is no stranger to the electric piano. In **Ex. 3**, I've written a blues solo exercise that approximates his funky Wurly stylings. The notes here all come from the *G* blues scale (*G*, *B♭*, *C*, *C♯*, *D*, *F*, *G*) with a jagged, syncopated rhythm and a dissonant, smashed chord at the end of beat 2, bar 2. Try to have small phrases in your lines that repeat and develop. Remember, space is the place—don't play too many notes!

## 4. New Orleans Riffs

**Ex. 4** was inspired by the piano part on "Dippermouth Blues" from Dr. John's latest album. Here, he plays some of his classic New Orleans-style piano riffs. Try playing this exercise an octave or two higher on the piano to take things into tinkerville! In bar 2, beat 2, notice how the lick bounces between the sixth and flatted third before doing a big roll on beat 2. The bar ends with some tight blues chords. Bar 3 has a slow, wide "shake" that lasts for two beats and then resolves into a boogie-woogie lick.

**Ex. 5.**

### 5. Electronic Tones

Dr. John often coaxes killer electronic timbres out of a wide array of keyboards—who can forget the beguiling RMI Electra-Piano on "Right Place, Wrong Time"? **Ex. 5** demonstrates a similar tone. With a boogaloo baseline, this quirky sound pops out blues licks with notes from the *A* blues scale (*A*, *C*, *D*, *E*♭, *E*, *G*, *A*). Notice the use of triplet rhythms and the "rub" of the fifth and flatted fifth in the exercise.

## Practice Tip

"A lot of New Orleans keyboard ensemble playing stresses simplicity with the left hand. Use it to add little riffs and comps, but leave sonic space for the other members of the band," says **Brian Charette**, who has performed and recorded with Joni Mitchell, Michael Bublé, and Rufus Wainwright in addition to leading his own jazz groups. Charette recently won *Downbeat* magazine's "Rising Star, Organ" award and just released the album *Good Tipper*. Find out more at brian-charette.squarespace.com.

## Listening List

**DR. JOHN**

"What a Wonderful World"
*Ske-Dat-De-Dat: The Spirit of Satch* (2014)

"Revolution"
*Locked Down* (2012)

"Blues in the Night"
*Mercenary* (2006)

"Right Place, Wrong Time"
*In the Right Place* (1973)

"Gris-Gris Gumbo Ya Ya"
*Gris-Gris* (1968)

Dr. John with Harry Connick Jr., "Do You Know What it Means to Miss New Orleans?"

Play-along audio examples.

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# Reharmonize Yourself

BY JEFF BABKO

**WHEN I WAS A BUDDING YOUNG MUSICIAN, ONE OF THE JOYS FOR ME WAS SITTING** down at the piano with no particular regimen and discovering *harmony*. Playing basic chords and plopping an unused finger on an in-between note would create a sudden "jazzy ninth" sound. Moving my thumb over two notes at once made things sound more like Steely Dan. Suddenly, I felt I sounded sophisticated.

One exercise I find rewarding is taking a simple melody and seeing how to tweak its harmonic and stylistic backdrop. One song I often end up playing in this manner is the jazz standard "Blame It on My Youth" by Oscar Levant and Edward Heyman. (See below for five great renditions of this popular song.) In the following examples, I've come up with a simple melody of my own and reharmonized it in different ways.

**Ex. 1.**

**Ex. 2.**

## 1. Bare Bones

**Ex. 1** illustrates our lesson's melody/song idea. Here I've written single notes for both the right and left hands, along with basic chord symbols like you'd see in a "fake book." Note that this melody is diatonic, so it will be easy to stretch it harmonically.

## 2. Pedal Point

In **Ex. 2**, try pedaling our entire four-bar phrase over the tonic of *D*. This harmonic scheme works well and gives the piece a pastoral, "Americana movie score" quality. This is just one of a thousand ways you could approach this melody with a pedal point. (You can even try moving the pedal point to *B*, the key's relative minor.) Particular points of interest here are the dominant chord in beat 3 of the third bar and the *min6* chord in bar 3.

## Listening List Versions of "Blame It on My Youth"

HOLLY COLE
*The Number 1 Jazz Vocal Album*

KEITH JARRETT
*The Cure*

NAT "KING" COLE
*After Midnight*

BRAD MEHLDAU
*The Art of the Trio, Vol. 1*

CHET BAKER
*Sings and Plays from the Film "Let's Get Lost"*

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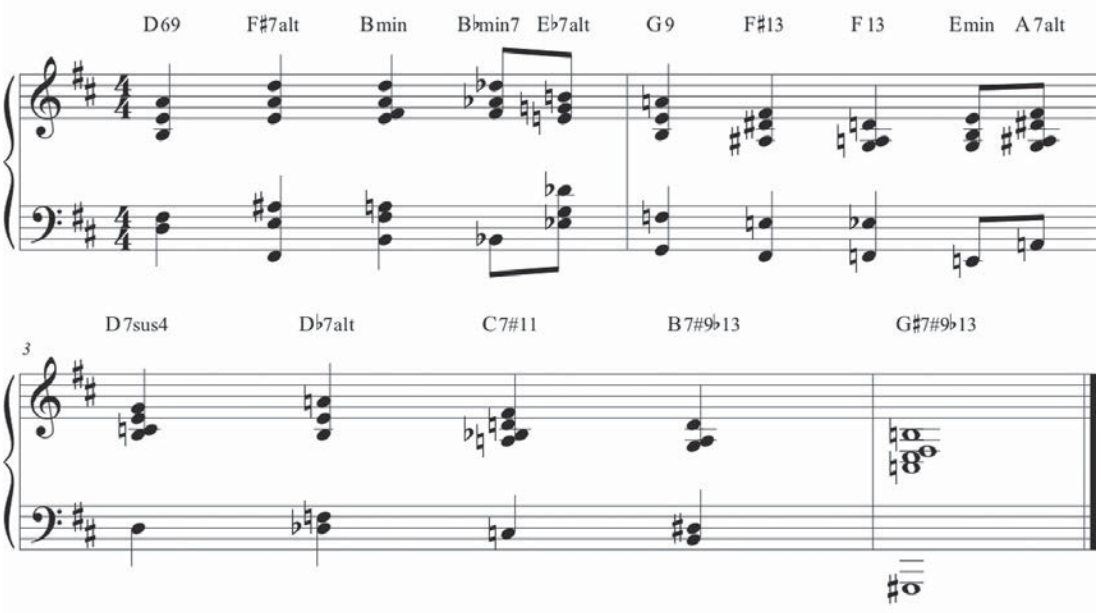
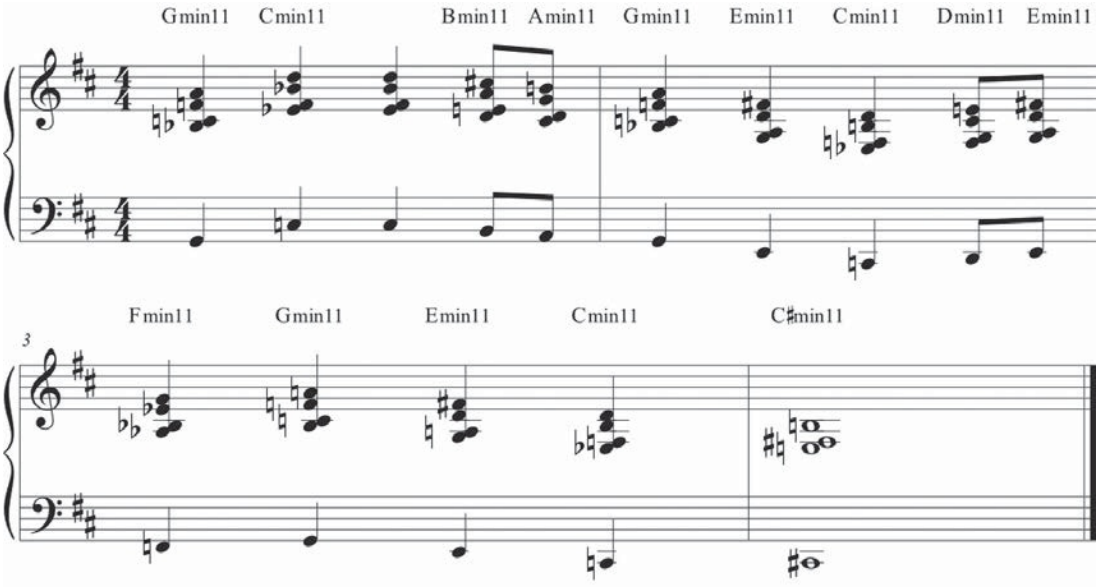
**Ex. 3.**

**Ex. 4.**




**Ex. 5.**




## 3. Modal Plus

Sometimes a nice challenge is to see if you can base a melody on a different mode. In **Ex. 3** I explore the Aeolian mode. I really enjoy exploring this mode, as there's something grey and "ECM Records" about it. Here, the first two bars stay in this mode and then we branch away from it. In the last two bars, we see the *V/I* chords that I absolutely love and affectionately call "Todd Rundgren chords."

## 4. Total Jazzplosion

In **Ex. 4** things just start to get silly! Jazz geeks like me love to see if we can alter the harmony of each chord, almost like doing a puzzle. The jazz vocabulary often utilizes *ii-V-I* progressions, and we see versions of this in bar 1. Beats 2 and 3 are a mini *V-I* resolution, and there's a deceptively quick *ii-V* in beat 4 in a different key. (These "mini modulations" can be fun when reharmonizing a song). There's also a *ii-V* progression in beat 4 of bar 2. Note that the chord voicings here are rich and reflect the jazz sensibilities of this example. Also pay attention to the descending chromatic motion in the left hand.

## 5. Parallel Surprises

**Ex. 5** explores a particular harmonic "shape" and follows the melody exactly with it. Here we have a *min11* chord, another favorite of mine. The minor 11th flavor also juxtaposes with the very major and hopeful-sounding melody. It's interesting how a tune can take on such different character with parallel chords like these, and each note has a different relationship with that chord shape. The "surprise" here is that the last chord is a different shape, but still a *min11* chord as well. ♫

**Jeff Babko** is best known as the house band keyboardist on *Jimmy Kimmel Live*. He has recorded with Frank Ocean, Jason Mraz, Sheryl Crow, and Mark Guiliana. Babko's latest release *Crux* is out now. Find out more at jeffbabko.com.

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# Wurly Wonderland

BY ANDY BURTON

**THE WURLITZER ELECTRIC PIANO OR "WURLY" IS A CLASSIC. THOUGH IT HAS A RELATIVELY SIMPLE TIMBRE AND** not as much pitch or dynamic range as an acoustic piano, it is nevertheless quite versatile. Much as the grand piano is often used in classical music as a stand-in for a whole orchestra (as in a "piano reduction" of an orchestral score), the Wurly can also play roles associated with other instruments. In this lesson, we'll use the simple four-chord progression of *G*, *Dmin7*, *Amin*, and *F* to illustrate five different ways we can use the Wurly as part of a pop, rock, or R&B arrangement.

**Ex. 1.**

## 1. Horn Section

The Wurly's barking, biting qualities can mimic brass, as seen in **Ex. 1**. While it doesn't really sound *like* brass, a Wurly part can do the same kind of "answering the vocal" function that a section of trumpets, saxes, and trombones might do in a rock or R&B arrangement. A good example of this is the Wurly part on "Any Major Dude Will Tell You" by Steely Dan.

**Ex. 2.**

**Ex. 3.**

## 2. Guitar Riffs

**Ex. 2** illustrates how the Wurly is a great riffing machine. Its warm, distorted tones can fire off a gnarly blues riff to rival anything an electric guitar can do. (Okay, you can't bend notes, but power chords in fifths sound delicious on a Wurly.) And if you add a touch of blue notes or pentatonic "sliding," the results can be quite effective. Listen to "Miss You" by the Rolling Stones for an example of this in action.

## 3. Guitar-Like Tremolos

The Wurly has a wonderful tremolo built in, demonstrated in **Ex. 3** and similar to that of a tremolo electric guitar. Fewer notes are needed, as the shimmering effect gets you into a dreamlike space just on the strength of some spare, sustained notes or chords. Tom Petty's "Breakdown" has a great example.

## Listening List

### 7 DEADLY WURLY TRACKS

1. RAY CHARLES, "What'd I Say"

2. TOM PETTY AND THE HEARTBREAKERS, "Breakdown" (Benmont Tench)

3. THE ROLLING STONES, "Miss You" (Ian McLagan)

4. ARETHA FRANKLIN, "I Never Loved a Man the Way I Loved You" (Spooner Oldham)

5. BECK, "Where It's At"

6. QUEEN, "You're My Best Friend" (John Deacon)

7. STEELY DAN, "Any Major Dude Will Tell You" (Donald Fagen)

## Check Your Speed

"If using a virtual Wurly or workstation preset, set your tremolo speed as close to 6Hz as you can get. Many factory patches use a slower tremolo more associated with a Rhodes." says **Andy Burton**, who graduated from Harvard University *cum laude* in music and currently plays keyboards with John Mayer. Burton is currently at work on his first solo album. Follow him on Twitter @andyburtonmusic.

**Ex. 4.**

## 4. Gospel Piano

**Ex. 4** takes your Wurly to church. Many pioneering electric pianists (especially Mr. Ray Charles Robinson) cut their teeth playing gospel piano, and it works well on the Wurly, which adds a little extra ferocity due to the distortion and more primitive waveform of the amplified reed, as compared to a piano string. The action of a Wurlitzer is very similar to that of an acoustic piano, which helps explain why it effectively translates to gospel piano playing. Check out Aretha Franklin's "I Never Loved a Man the Way I Loved You" to hear the Wurly used in this way.

**Ex. 5.**

## 5. Stomp Piano

**Ex. 5** uses the Wurly in a way that parallels an acoustic piano in a shuffled, "stomp" kind of groove, like those on middle to late-period Beatles tracks. In this context, the piano is essentially approximating the feel of a marching band, so the tones and phrasing have both brass-like and percussive qualities. Listen to Queen's "You're My Best Friend" to hear this kind of stomp piano effect. ♫

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## THE ART OF SYNTH SOLOING

# Five More Uses for Pentatonics

BY JERRY KOVARSKY

**WARNING: JAZZ AHEAD. SOME OF THIS MONTH'S LESSON FALLS WITHIN** modern jazz vocabulary, and may seem out of place in a synth-oriented column. When looking back to the advent of soloing on a synth, however, you can't deny that "jazz fusion" artists such as Chick Corea, Herbie Hancock, Tom Coster, Jan Hammer, George Duke, and T. Lavitz were very influential. They all found new ways to apply the vocabulary over simpler songs—and even one-chord vamps. So let's journey closer to the edge this month to understand five advanced ways to apply the pentatonic scale to your playing.

**Ex. 1. *C* minor pentatonic followed by *F♯* minor pentatonic.**

**Ex. 2. *C* minor pentatonic followed by *E* major pentatonic.**

**Ex. 3. Alternating between *C* minor and *F♯* minor pentatonic.**

**Ex. 4. Alternating between *C* minor and *E* major pentatonic.**

**Ex. 5. A simple chromatic pentatonic fragment.**

## Tension and Release

Last month, we explored using pentatonic scales not based on the root tone of the chord to add more color and altered tones to your lines. Almost any pentatonic scale can be used as a short trip away from the chord/tonality as long as you resolve back into something more consonant with the chord. I tend to use this approach mostly on minor seventh and dominant seventh chords and vamps.

**Ex. 1** shows a basic approach starting with the root tone minor pentatonic, and then moving to a minor pentatonic a tritone (sharp fourth) away. The notes don't make sense against the chord, but the tension and "outness" they produce is a cool color, and as long as you resolve back to a more inside pentatonic before too long it works nicely. **Ex. 2** shows the concept against a dominant seventh chord—this time mixing up the root tone minor pentatonic with the major pentatonic starting on the major third from the root.

## Alternating Modes

A variation on this concept is to pick two scales and create lines moving back and forth between them. Just be sure to end back on the more "inside" choice. **Ex. 3** and **Ex. 4** show how you might do that with the same scale choices used in the first two examples.

## Chromaticism

Another cool device is to take a small pentatonic scale fragment and keep moving it up (or down) chromatically. Start practicing this simply, as shown in **Ex. 5**, and then

**Ex. 6. A more interesting pentatonic figure moving up chromatically.**

**Ex. 7. A more advanced pentatonic figure moving up chromatically.**

**Ex. 8. Major pentatonic figures moving up in minor thirds.**

**Ex. 9. Minor pentatonic figures moving up in major thirds.**

**Ex. 10. The Mixolydian pentatonic scale.**

**Ex. 11. The Dominant pentatonic scale.**

move into creating your own shapes as shown in **Ex. 6** and **Ex. 7**. This is a classic "move" that provides plenty of opportunity for excitement.

## There and Back

The next concept is to take a slightly longer journey away from the root tone/key center. A common way to do this is to move your pentatonic key centers up or down in equal intervals, like minor thirds (**Ex. 8**) or major thirds (**Ex. 9**). I'm keeping the examples short due to space, but you should explore longer lines and stay on each tonality for varying amounts of time.

## Two More Five-Note Scales

Any grouping of five notes from a mode or scale can *seem* like a pentatonic scale. But a few have been codified in jazz teaching, the most common being the Mixolydian pentatonic. This scale adapts the major pentatonic to work on a dominant seventh chord by swapping out the sixth tone for the flatted seventh (**Ex. 10**). Another is the Dominant pentatonic, which takes the minor pentatonic and raises the third to a major to work well on a dominant seventh chord. (see **Ex. 11a** and **11b**). I hear Jan Hammer when I use this scale, and I still remember reading a great lesson with T. Lavitz in the June 2006 issue of *Keyboard,* where he explained that he used this scale over minor seventh chords, starting on the fourth scale tone of the chord (*C* dominant pentatonic over *Gmin7*, for example). See Example **11c** for his wonderful work.

## Credit Is Due

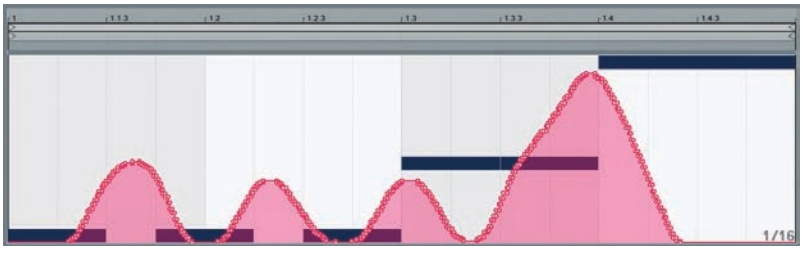
Jazz pianist McCoy Tyner is one of the seminal influencers and explorers of these pentatonic scale concepts, along with the quartal harmony he's known for. If you don't know his music go out right now and explore it. He is the wellspring that so many players drew upon in developing this vocabulary. ♫

# Modular Via MIDI

BY FRANCIS PRÈVE

**IT'S BECOME QUITE CLEAR THAT MODULAR MANIA HAS TAKEN OVER THE** synth industry. It goes without saying that building your own custom synth from scratch is an enticing proposition, but it's also a bit of a luxury when you add all the components up—even for a fairly basic configuration. Two of the most common purchases for a contemporary modular rig are LFOs and envelopes. These modules can really add a lot of dynamic complexity to your sounds—and drive up the cost of your system. So this month, we'll take a step back and look at a really simple way to add extensive modulation amenities to *any* synth that offers MIDI CC control over its array of knobs and sliders.

How? Automation, of course. If your current hardware synths transmit CC info from the front-panel controls, then nearly every parameter is fair game for some faux modular tricks. The only real caveat is the overall MIDI implementation. If it's got standard five-pin jacks, you'll be limited by the original MIDI transmission rate, which means you can only add one or maybe two sources. On the other hand, if you've got a modern USB-based synth, your options are far greater.

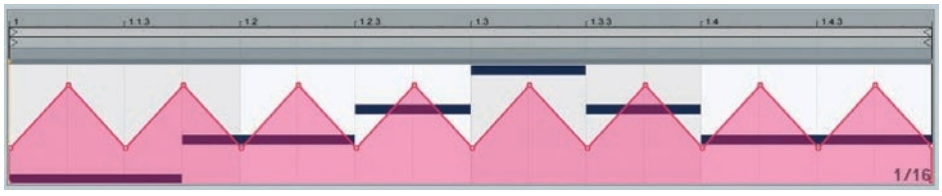


## Envelopes, Step 1

Create your riff, then make a copy of its track so you can have the original, unadulterated note info on hand for experimentation. Next, pick a single parameter to modulate by turning its knob and recording the result. As you begin, stick with one parameter so your automation is easy to find and edit.

## Envelopes, Step 2

Once you've located the automation track (Ableton Live's clip envelopes are perfect for this) then draw in an envelope for one of the note events. From there, copy it to each of the other note events in your sequence. If you want to keep things authentic, just cut/paste the same automation to each event. If you want to get fancy, you can tailor each envelope to the overall style and groove of your track.

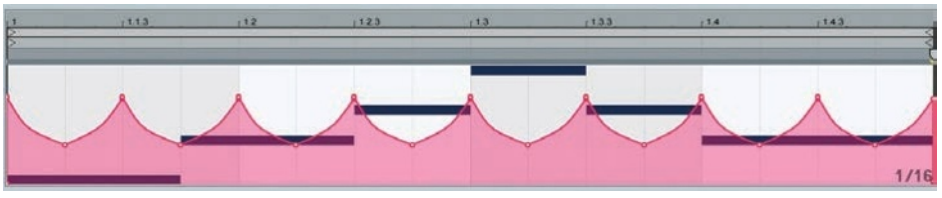


## LFOs

LFOs are even easier. Just create your basic shape—triangle, square, sawtooth—and copy/paste it repeatedly throughout your sequence. You can "tempo sync" it by making sure it fits neatly on the quantization grid or simulate a free-running LFO by ignoring the grid, entirely. The only real caveat here is that audio-rate modulation will probably wreak havoc on your MIDI stream, so this technique is best for more standard LFO tricks.

## Advanced LFOs

One of the coolest aspects of using automation as a substitute LFO is the fact that you're no longer limited to the standard LFO waves. If you want to create specific curves or unusual waveforms, it's just a matter of customizing the automation before you copy/paste it. In this way, you can go beyond what's available in common modular gear and put your own artistic stamp on the results.



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Audio examples of these techniques.

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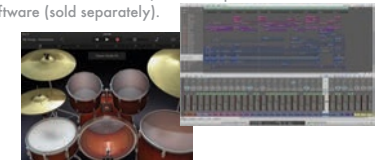

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## NATIVE INSTRUMENTS

# Komplete Kontrol S

BY JOHN KROGH

**ANYONE WHO'S FAMILIAR WITH NATIVE INSTRUMENTS' IMPRESSIVE KOMPLETE** bundle of software instruments knows it offers a lot of sonic horsepower. The challenge for many of us, however, is making the most of all that *content*. NI offers a solution with their new Komplete Kontrol S-series keyboard controllers.

I hear you—do we really need another USB MIDI controller? It's a crowded field, to be sure. So how is NI differentiating their first effort here? For starters, they've forgone the now familiar combo of trigger pads and faders. Instead, the S-series sets its sights on discerning players by focusing on the keyboard action, and on tight integration of browsing and control mapping with NI's Komplete range of software instruments.

## Overview

The Komplete Kontrol S-series keyboards (KKS hereafter) are available in 25-, 49-, and 61-key versions, with identical features across the range. We received the 49-key model for review. They feature MIDI in/out ports and two pedal inputs, one for sustain/momentary switches and one for continuous/sweep controllers.

The KKS doesn't run on USB power but instead requires a power supply (included) that comes with adapters for Europe, Asia, and the United States. NI has made some interesting choices with the hardware. There's no built-in audio interface, for example, which might get some grumbles from folks who hope to use the KKS live. But most NI software users live in studio-

## Snap Judgment

**PROS** Excellent build quality. Best feeling keyboard of any synth-action controller we've played. Intuitive, flexible patch browsing without having to use a mouse. Intelligent, automatic mapping of parameters via Native Map.

**CONS** Limited functionality for live stage use. Pricier than competing models. No pads or faders. We experienced some glitches in use.

**Fig. 1. *Left*: Relevant parameters for a patch from The Gentleman piano show up on the Kontrol S Clear View display. *Right*: The most musically useful parameters for the Prism synth are available when this track/patch is selected.**

land and don't need a keyboard controller to pull double duty as an audio interface.

Instead of adding cost for audio I/O, NI chose to focus resources on what matters most to players: the keyboard action. The KKS boasts a Fatar keybed that feels and plays unquestionably better than any other synth-action controller I've ever used. There's a smooth finish to the keys and a nice, positive resistance that feels expensive and satisfying.

This same upscale ethos is applied to the rest of the hardware. The knobs are solid, with a slightly rubberized grip that feels reassuring, the chassis seems well constructed, and the "Clear View" display area below the knobs has the look and legibility of a high-end control surface.

While you can purchase the keyboard separately from any NI software and use it as you would any other MIDI keyboard controller, you'd be missing out on its reason for being, namely tight and intuitive integration with all of NI's wonderful synthesizer and sample-based instruments included in the new Komplete 10 and Komplete 10 Ultimate software bundles. (KKS will also work with Komplete 9.)

This integration is made possible by the Komplete Kontrol software, which is part of the Komplete software bundle and allows for direct, automatic mapping of instrument parameters to the KKS's eight endless rotary encoders, through what NI calls Native Map. (Note that the Komplete software is a separate purchase, and, when combined with a Kontrol S keyboard, puts the starting cost of entry at over $1,000.)

The idea of automatic parameter mapping isn't new, of course. If you've ever tried to configure a "dumb" controller for use with software instruments, you know why automatic mapping is such a big deal. Beyond just the time saved, having immediate access to a sound's filter cutoff, resonance, envelope, effects, and so on, makes working with a software instrument more like working with a hardware synth.

With Native Map, NI's sound development team customized the parameter mappings for each of the virtual instruments and sound packs in Komplete, assigning the most musically useful parameters to the first bank of Clear View cells and organizing them in a sensible way. For example, if you load an acoustic piano into Kontakt, you get access to a variety of tone-shaping and virtual mic placement parameters, which you could tweak to dial in the right piano sound for a mix. If you load a synth patch, you'll get access to filter type, cutoff, and other parameters from the first page of available controls (see Figure 1).

## "Perform" Features

The Kontrol software features a MIDI processing engine that serves double duty as a scale and chord generator, and a full-featured arpeggiator. These can be enabled via the software's "Perform" panel, but to access all of the functionality you'll need to use the dedicated Scale and Arp buttons on the KKS. Arguably, this kind of precise parameter setting—*e.g.*, selecting different arpeggiator patterns, modes, and rates—is easier to do with a mouse.

With the Scale mode enabled, incoming MIDI notes are remapped to trigger notes from a variety of user-defined or pre-programmed scales, such as harmonic minor, blues, and Japanese. Essentially, you can't play a wrong note, and you can experiment with different tonalities. The chord feature works in a similar way. I won't go into too much detail, but I will say these Perform features are certainly fun and I can imagine how they might help kick start musical ideas.

The arpeggiator is equally inspiring, and can be combined with the scale/chord features to create complex and interesting results. It's not quite the same as being able to make your own arp patterns from scratch, but there's still a lot you can do by bringing all the Perform features to bear on a single sound source.

## Light Guide

Above the keys are a series of multicolored LED lights (collectively called the Light Guide) that provide visual feedback to indicate a variety of information, such as which keys have drum assignments,

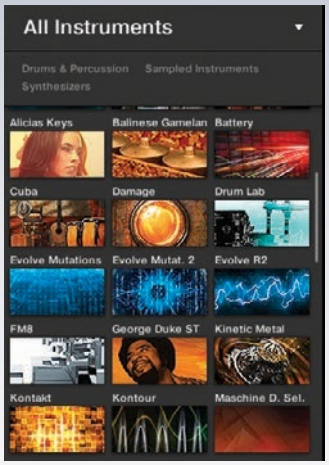

**Fig. 2. *Left*: Browsing for sounds by instrument. *Right*: Browsing by Type and Mode.**

which notes belong to a selected scale (a Perform feature), and which notes are used for key-switching articulations in Kontakt instruments. While a couple of online forums have criticized Light Guide for looking toylike, as someone who uses a lot of key-switched instruments I find it to be extremely helpful. If you don't like it, you can turn it off in the preferences.

## Komplete Kontrol Software

Komplete Kontrol can run as a stand-alone application or as a single-instance plug-in within compatible DAWs, and is designed to make it easier to browse for sounds within the expansive Komplete collection. "Easy browsing" might not seem too ambitious a goal, but when you consider that there are over 17,000 sounds across the range of instruments, finding and managing the kinds of sounds you want becomes a major concern. Fortunately, Kontrol has you covered.

From Kontrol's browser, sounds can be searched by instrument or sound pack, and by Type, such as Bass, Bowed Strings, and so on (see Figure 2). You can further refine a search by choosing Mode criteria, such as Long/Evolving, Sample-Based, Slow Attack, and so on. Type and Mode criteria rely on attribute tags assigned to each sound, and you can assign your own tags, all of which are referenced in Kontrol's library database.

It's very clever, and the result is that Kontrol gives you multiple points of entry into the universe of Komplete. Want to dive straight into Kontakt for some acoustic pianos? Start by choosing Kontakt as your instrument and then go from there. Not sure whether the synth bass you're hearing in your head lives in FM8, Monark, or Massive? Start with Type and drill down.

To minimize confusion and manage screen real estate, instruments loaded in Kontrol can be viewed in three different ways: Default view presents a simplified interface and limited set of parameters, the Additional view presents more detail by providing access to additional parameters, and the Edit view lets you open the full user interface for Reaktor and Kontakt instruments. This is one of many thoughtful details that really improve the overall workflow.

I do wish it were possible to tag sounds as "favorites" and put them into project-specific collections the way you can with sounds in Propellerhead Reason's browser or Spectrasonics Omnisphere. I frequently spend time in pre-production auditioning and choosing sounds for specific projects, and throwing the results into a favorites group that I can then return to when I'm writing. I also do this with Kontakt's own Quick-Load, which offers similar functionality. While there is a workaround that sort of provides similar functionality in Kontrol, it would be nice if it this was fully implemented.

## Stand-Alone MIDI Control

With the included Controller Editor software you can create custom MIDI CC assignments and keyboard zones/splits, which can be saved as a template. You can create multiple templates and switch among them from the keyboard by pressing the Preset up/down arrows, letting you recall custom mappings for non-Komplete software instruments, which is useful for studio and live use (as of this writing, the KKS doesn't send MIDI via the five-pin port in stand-alone mode). I put this to good use by creating a template for Omnisphere and one for Vienna Instruments Pro, and then switching manually depending on which track I selected in Logic.

From the editor you can also choose between eight velocity sensitivity settings. I'm glad this can be adjusted, but it seems like a setting that ought to be available from the hardware directly.

It's also worth noting that the controller needs to be connected to a computer for it to function. There's no *true* stand-alone operation (*e.g.*, patch memory, programmability from the hardware alone, and the like), which might be a deal-breaker for keyboardists who want a master controller for a stage rig that combines software and hardware instruments.

## In Use

I've been using various instruments in the Komplete collection for years, but I have to say that having Kontrol as a central interface that organizes all those sounds in an intelligent way—and lets me work directly from the keyboard without having to use a mouse—definitely made me a believer. If I were primarily an "NI guy," no doubt this would be my controller of choice.

I did run into a number of technical issues. The KKS crashed randomly a number of times during the review, both in Logic Pro and in stand-alone mode. Sometimes the hardware wouldn't sense when I switched from a track loaded with a Komplete instrument to a track loaded with a third-party soft synth. Other times it would work as expected. There were other unrepeatable crashes that required full restarts. I'm hoping these are merely growing pains that NI can sort out in future updates.

## Conclusions

The Kontrol S series is a worthy contender in the USB MIDI keyboard controller market. If you're invested in Komplete, the browsing and control mapping features alone make it a no-brainer. Even if you have an 88-key master keyboard you already love, the software integration makes a serious case for perching at least the 25-key unit on top of it as "mission control" for all things Komplete. It might not be the best choice for those who need a more general-purpose controller—especially for onstage use—but that's not the target user for this instrument. If you own (or are thinking about buying) Komplete, you're serious about your keyboard feel, and you want to improve your entire workflow in the studio, Kontrol S is the obvious choice. ♫

## Bottom Line

An absolute must-have if you use Komplete, and still a great USB MIDI keyboard controller for the studio if you don't.

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## PROPELLERHEAD
# Reason 8

BY JIM AIKIN

**A NEW VERSION OF REASON IS ALWAYS A WELCOME EVENT. OVER THE PAST** few years it has seen significant advances, notably the addition of audio tracks, the ability to transmit MIDI to external hardware synths, and the new Rack Extension (RE) format. Third-party developers have flocked to create new REs. Given that history, expectations are bound to run high. But what's left to do? Reason 8 is only a modest advance over 7.1, but it does have one terrific new feature, which will have experienced Reason users dancing in the streets.

## Overview

The big news is a vastly improved browser. No longer a pop-up window with its own eccentric navigation methods, the browser sits in a pane on the left of the screen. And it's not just a traditional file folder tree: It's smart, in ways that will make your workflow smoother.

Before we look at that browser, a brief intro may help newcomers understand what's cool about the program. Reason is a cross-platform DAW (digital audio workstation) that can't host VST or AU plug-ins, but instead comes with its own very capable synths and effects. You can do full-on music production right out of the box, without having to spend another nickel. However, you can purchase a variety of excellent plug-ins in the Rack Extension (RE) format from the shop on Propellerhead's website.

Reason is unique in that the devices in its virtual "rack" can be flipped so as to view their "back panels." Here you'll find jacks for patching control and audio signals from one device to another. You could think of Reason as one enormous patchable modular synth with a built-in sequencer.

Other than that, the DAW features are fairly standard: audio track editing and comping, audio time-stretching and pitch-shifting, a great mixer with compressors and subgroups, and so on. The

## Snap Judgment

**PROS** Still a terrific workstation. Significantly smoother workflow thanks to the new browser.

**CONS** Not much is new, other than the browser.

MIDI editing features are solid, but not stellar.

To use your favorite VST or AU plug-ins in a Reason song, you can patch Reason into another DAW using ReWire. You'll have to save and load your project in two separate files (for Reason and the other DAW), but the technology does work.

## The New Browser

If you spend a lot of time hunting for new presets and loops, you'll love Reason's new browser. It occupies space at the left side of the screen, which laptop users may find less than ideal, but it can be opened and closed with the F3 key, neatly complementing Reason's use of F5, F6, and F7 for the mixer, rack, and sequencer displays.

Drag-and-drop is fully implemented, and works beautifully. You can drag a synth from the browser into the rack, or into an empty spot in the sequencer track window, and the new device will be created instantly. Ditto for preset files—drag one into a blank spot in the rack or sequencer track list, and you'll get a new device that's already loaded with that preset. Drag an RX2 file into the rack and you get a Dr. OctoRex device; drag it into the sequencer and you get an audio track.

When new synths are created, they're given the name of the preset. If you drag a new preset onto an existing synth or double-click it in the browser to load it, the synth will be renamed in both the track and mixer panels. But if you've renamed the device manually, your new name won't be overwritten by the new preset name. Perfect.

Click on the Browse Patch button (the little folder icon) on a device's front panel, and the browser automatically switches to display the files suitable for that device. Drag-and-drop also works with Kong and ReDrum sound slots and Dr. OctoRex loop slots, but Reason doesn't always know what type of sound you want to put in a given slot, so it doesn't try to guess. A bit of manual navigation through the browser may still be required in this case.

## Other New Features

The transport bar at the bottom of the screen has been redesigned with new graphics. Ditto for the track headers at the left side of the sequencer.

The functionality is the same, but Reason now has a more "flat" look, not unlike the style of Ableton Live.

The sequencer has been tweaked a bit. MIDI notes can now be lengthened or shortened from either end, or erased by double-clicking. Automation clips can now be added to an existing track using a drop-down menu. (I'm not sure this is new, but I never noticed it before.) After selecting a group of notes, you can duplicate it using command-D (Mac) or control-D (Windows), which pastes a copy at the next quantize location after the end of the last note in the group.

The Line 6 guitar and bass amp effects, which have been part of Reason for a while, are still included in Reason 8, but the word is they'll disappear in a couple of years. Similar devices from Softube are now included, so they should be used in new productions. The Softube bass amp is limited, but the guitar amp is quite nice, with a choice of four amps (Twang, Crunch, Rock, and Lead) and four cabinets (Bright, Room, Fat, and Tight).

If you prefer to create new rack devices from the pop-up mouse menu, you'll be pleased to find that your device list is now organized into submenus by manufacturer. This is very handy if you have as many Rack Extensions as I do.

## Conclusions

I use Reason a lot, and I'm always happy to recommend it to musicians who are looking for powerful, integrated recording software. It combines great, highly patchable synths and effects with smart audio track handling. The new browser in version 8.0 takes care of what was formerly a significant bottleneck in the workflow.

For current Reason users, is the $129 upgrade worth the money? If you're strictly recording audio tracks, maybe not. If you do much MIDI sequencing, then yes. And if you haven't yet considered using Reason as the hub of your music productions, there has never been a better time to try the free demo download. Like most full-featured programs these days, Reason 8 is complex, but once you get into it, you'll be amazed at what it can do. ♫

## NEW(ISH) RACK EXTENSIONS

The Shop page on the Propellerhead website offers more than 100 third-party Rack Extensions. All are available to Reason owners as fully functional 30-day trials. Here are four that recently caught our eye.

**Synchronous (Propellerhead, $49).** A terrific resource for rhythmic effects, Synchronous (shown above) incorporates its own distortion, multimode resonant filter, delay line, and reverb. Three synchronized curves can be edited graphically and used to modulate the effects' parameters. The delay line has a "keep pitch" button, which isn't a feature you'll see every day.

**Combo Compact & Combo Continental (Jiggery-Pokery, $35 each).** These faithfully model the Farfisa Compact and Vox Continental organs. Cheesy? You bet. Great-sounding? That, too. There's even a modeled spring reverb. All together now: "There is a house in New Orleans . . ."

**SM Tritone (Sound Mod, $49).** This muscular distortion effect splits your signal into low, mid, and high bands, with adjustable crossover points. You can then apply any of eleven different waveshaping algorithms to each band.

**Mercury (Quadelectra Audioworx, $39).** This RE takes arpeggiation to a whole new level. Reason's CV note/gate signals are inherently monophonic, so Mercury gives you four CV output pairs, one for each voice, plus outputs for pitch-bend, mod wheel, and four patchable modulation CVs. Feel free to route each output to a different sound for an endless supply of amazing textures.

## Bottom Line

An already great program is now even better.

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# XFER RECORDS Serum

BY FRANCIS PRÈVE

**FOR MORE THAN SIX YEARS, STEVE DUDA'S SOFTWARE PRODUCTS HAVE BEEN** secret weapons for electronic music artists. His LFO Tool is a staple in producers' arsenals, while Cthulhu (reviewed May '13) and Nerve have become indispensible for chord progressions and groove design, respectively. About three years ago, he began work on his first actual synth, Serum, and the result is breathtaking in scope. Over the several months I've been beta-testing Serum (unpaid, so as to avoid conflict of interest with this review), it has grown from a great idea to one of the best soft synths I've ever used, bar none. While Serum's architecture—two oscillators, sub-oscillator, noise generator, filter, and modulation—is common enough, its implementation and flexibility are groundbreaking. Let's dive into the specifics and you'll see why it's setting the synth world ablaze after only a few weeks of availability.

## Oscillators

Serum's oscillators are the most flexible I've ever used in a soft synth. They're also the cleanest, as Duda has painstakingly removed virtually all audible aliasing, which is no mean feat. Playing notes in the highest registers produces no additional sidebands of any kind. The frequency response of Serum is immaculate.

The two main oscillators are wavetable-based, with over 150 distinct tables available for each. The WT position knob smoothly scans through the wavetable, delivering everything from metallic morphs to vowel sweeps to grungy distorted mayhem, but that's just the beginning. From there, the warp knob further transforms the factory tables.

The 22 warp modes include three kinds of hard sync, bending tools (which add sinusoidal curves to hard-edged shapes), symmetry offsets, pulse width modulation (for any waveshape), mirroring, flipping, quantizing (stepping), and even four different remapping modes. This is also where you'll find FM and AM functions, including options for noise-based modulation. In 30 years of sound design, I've never seen this much flexibility from only two knobs and a pair of pull-down menus. Even if you're a newcomer to wave-shaping and tables, the interface clearly displays what's going on in the engine at all times, which makes experimentation a lot more enjoyable.

Naturally, each oscillator also includes "super" unison functions, but with some lovely visual feedback. When you invoke this feature, the oscillator displays each additional instance (up to 16) as a vertical bar. Detuning the added super-waves moves the bars farther apart and a blend knob adjusts the volume of the added detuned waves. This implementation is impeccable, both sonically and intuitively (see Figure 1).

Rounding out each oscillator's wave-shaping tools is a pair of phase controls. The main knob controls the basic phase (up to 360 degrees) while the second knob introduces randomization. Analog fans take note: Adding a touch of phase randomization to your waveforms really livens up the sound in an organic fashion. There are also level and pan controls for each oscillator, which is expected, but when you've got two detuned wavetables shifting and morphing, it sounds astonishing in stereo.

In addition to the dual oscillators, there's also a sub-oscillator and noise generator. The sub-oscillator goes beyond the usual fare by including all of the classic waveforms plus an eight-octave range—which lets you pitch it *above* the main oscillators if you so choose. It also has its own level and pan controls.

The noise generator is equally complex, with nearly 200 options including classic noise, sampled noise-like waves, Roland D-50 style inharmonic loops, and even kick drum transients. Everything can be looped or used in single shot mode for adding impact to your patches. The noise samples can also be tuned, with keyboard

tracking, if desired. Finally, the main oscillators' phase controls make an appearance here as well.

## Wavetable Editor

Serum also includes the most comprehensive and user-friendly wavetable editing system I've ever seen. Clicking on the pencil tool in either oscillator's waveform view brings up a huge interface that allows you to edit each individual wave in a table via any of several methods.

If you want to tinker with the waveform visually, you can select between 12 drawing tools (ramps, curves, lines, and such) and design your waveform graphically. After that, you can save each wave into your table, which accommodates up to 256 wave "snapshots." Alternately, if you're a whiz with additive synthesis, you can specify the level and phase for up to 512 "bins" (harmonics) and apply that as a slice in your table.

Maybe drawing waveforms and additive synthesis are too fiddly for you. In that case, you can simply import an audio sample of any kind, tell Serum how you'd like to "chunk" that into 256 steps, and then let the software work its magic, creating a new wavetable from the data. Feeding it shorter samples (less than one second) works best, but if you want some really radical effects, feed it ten seconds of an *a cappella* vocal and behold the mystery.

**Fig 1. Serum's Unison view displays individual components of stacked "super" waves, along with their relative detuning, as separate bars.**

On the other hand, maybe your day job is quantum physicist. If so, just input the mathematical formula for each waveform in your table. Serum can handle that, too (see Figure 2).

Once you've created a few unique waves for your wavetable, you can invoke Serum's vast assortment of processing tools, from DC offset removal and normalizing to sorting your waves based on their spectral data. Every imaginable detail is covered. Once it's finalized, you select your wavetable morphing mode. Crossfading will yield the most familiar results, but there are also three options for morphing your table via analyzing its spectral components.

## Filtering

All of these tone-generating tools can then be routed into an equally comprehensive filter that also defies easy categorization. Because there are over 80 filter types, grouped into four banks, we'll go over each category as a whole.

The first bank, Normal, is where you'll find all of the familiar filter modes, including lowpass, highpass, bandpass, and several Moog-style ladder emulations that are wonderfully warm and full. The next bank, Multi, includes 21 combinations, like bandpass-plus-lowpass. These are evocative of the combination filters in the Oberheim Xpander and are extremely useful. The third bank, Flanges, includes 32 different modes, each tailored to comb/flange/phaser effects with different numbers of poles for each type. Finally, the Misc bank includes a sizable array of truly unusual material ranging from formant/vowel to EQs to a model that's based on a convolution reverb and sounds absolutely mind-blowing in context.

Once you've selected a filter type, there are six parameters for its behavior. Naturally, cutoff and resonance are present, along with a Drive knob for adding some push to the sound. In addition to these, there's a Stereo knob that offsets the cutoff in varying amounts to the left right channels. The results are different for each of the filter types, but more dramatic than you'd expect, as this feature often imparts a formant-like character. The fifth knob changes its function depending on the selected filter type. For example, in the Normal modes it adjusts the filter's "fatness," whereas in the comb and flange modes it serves as a separate highpass function. Finally there's a wet/dry knob that allows unprocessed audio to pass through.

## Snap Judgment

**PROS** Comprehensive tools for waveform design. More than 80 filter types. Four customizable LFOs. Ultra-flexible modulation resources. Effects parameters can all be modulated by any source. Extensive MIDI mapping features. Virtually zero aliasing, even in the highest registers. Visual feedback makes all this complexity surprisingly easy to use.

**CONS** Resource-intensive for both 32-bit RAM and CPU.

## Modulation

Serum is equally adept here, with three envelopes and four LFOs. The envelopes are fairly standard ADSRs with a hold feature between the attack and decay for compression effects. Making them even more useful and intuitive are independent Bezier handles for each of the time-based segments, which are useful for adding impact and punchy transients.

The LFOs are among the most versatile I've encountered to date. For starters, there's no waveform selector. Why? Because you can design your own shapes by manipulating up to 64 breakpoints, each with its own Bezier curve. Even if you use only a few points, you've got saws, triangles, and squares. At the opposite extreme, you can add a ton of breakpoints and create up to four customized step sequencers. Naturally, Serum can save any LFO or sequencer shape for future use and includes a great selection of starting points, ranging from standard wave shapes to more complex patterns.

Once you've selected (or created) a shape you like, you can modify it with more familiar parameters like LFO delay and rise (slope), or smooth out the transitions between sharper points for sine-like

**Fig. 2. Serum's wavetable editor allows you to design waveforms via drawing, additive synthesis, sample importation, or entry of mathematical formulae.**

functions. And like Xfer's LFO Tool plug-in, there are quite a few timing options that go beyond mere tempo sync. If you need a few more envelopes, you can switch the LFOs to one-shot mode.

Topping it off, all of these modulation tools can be quickly assigned to almost any parameter within Serum, in one of several ways. If you're in a state of flow, you can simply drop an LFO or envelope onto the desired parameter, or you can right-click on a parameter and add your modulation from a pull-down, or you can head over to the modulation matrix and really tweak your settings.

Serum's matrix offers 16 slots for routing your sources. In addition to the LFOs and envelopes, you've got the usual complement of velocity, mod wheel, aftertouch, and up to four macro knobs for controlling several parameters simultaneously. There are also two extremely unique "chaos" generators that generate random number strings. As a side note, these chaos generators are pretty much the same tools that software developers use to add analog drift to their filters and oscillators. Apply an extreme amount to pitch and you'll have swarming bees. Add just a touch and things suddenly sound "vintage."

In the matrix, you can also adjust response curves for modulation destinations, as well as adding secondary scaling modulators for doing things like adjusting LFO depth from the mod wheel or aftertouch.

You can assign MIDI CCs by right-clicking on any parameter and activating MIDI learn mode. What's more, you can save these MIDI assignments as custom user maps for later recall.

## Effects

All of the traditional processors are present including chorus, flanger, phaser, several types of delay, reverb, EQ, compression, another filter, and a wonderful tool called Hyper/Dimension that combines a unison effect with a terrific emulation of the classic Roland Dimension-D stereo delay/chorus.

What's especially cool is that every effect parameter can be modulated within the synth. Want an envelope on your flanger feedback? Yep. How about a step sequencer on your phaser frequency? Done. Chorus depth controlled by aftertouch? No sweat. The only real caveat is that these modulation tricks require monophonic patches, as all the effects are global on the output, so tons of polyphonic LFOs would confuse the results.

## In Use

With the exception of proper sampling and DX7-style multi-operator FM, Serum is capable of almost anything you can imagine—as long as you think it through. You can make it sound analog by adding some chaos to your oscillator tuning, randomizing the oscillator phase, and choosing a traditional filter with some overdrive and "fatness" dialed in.

If you want to create your own wavetables, whether they're shimmery like a PPG Wave synth or snarling like Native Instruments Massive, the tools are there. That is, if you can't find what you need in the extensive factory collection.

Additive synthesis is part and parcel of the wavetable editor, so if you want to focus on creating a few different harmonic arrays and smoothly transitioning between them using multi-stage envelopes or LFOs, have at it.

If you're a modular maniac, the options are tremendous, especially if you like complex tempo-synced step sequencers with graphically editable swoops and burbles.

Of course, godlike command of the harmonic spectrum comes at a price: Serum is fairly resource-intensive. A single instance costs around 200MB of RAM, thanks to its wavetable array. Every super-saw unison patch eats up the correlating number of voices. In addition, its gorgeous filters are a tad CPU-hungry. This is definitely a synth that makes great use of a 64-bit OS and DAW. If you're only using one or two instances, you'll be fine, but throw in a Kontakt-based orchestra and some convolution reverb and it's time to start freezing tracks.

## Conclusions

If ever a synth might open a wormhole into another universe, that synth would be Serum. The richness and complexity of its oscillator tools are transcendent. The filtering options offer more depth than the Marianas Trench. The modulation amenities are so flexible that asking for more is greed of the highest order. The fact that these tools are presented in a manner that's both visual *and* immediately intuitive to use pushes it over the top. If you're a synthesis connoisseur, Serum will be the best $189 you've ever spent. ♫

## Bottom Line

The new gold standard for wavetable and additive synthesis, Serum easily wins our Key Buy award on grounds of outstanding technological achievement.

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## SAMPLE LOGIC

# Cinematic Keys

BY MARTY CUTLER

**I'LL START OFF ON THE WRONG FOOT BY STATING THAT I THINK "CINEMATIC"** may be one of the most misused adjectives in the sound library world. Generally, the word associations include larger-than-life, bombastic, and often distorted, and many libraries exploit those characteristics to the exclusion of practically anything else. I think that the primary characteristic of a cinematic library should be that it's broadly evocative with a wide dynamic range. To be sure, SampleLogic's Cinematic Keys has plenty of the latter, but it would be a serious mistake to dismiss it as just another batch of super-size sonics. Let's find out more.

## Organization

Cinematic Keys is a new sample library for Native Instruments Kontakt 5 and the Kontakt 5 player. The sound set comprises acoustic and electric keyboards recorded in their normal, playable state as well as pianos and toy instruments that have been stressed, torn apart, hammered, sliced, torched, and generally mutilated. In addition to normal playing techniques, samples include bowed and plucked versions.

The library offers banks of single Instruments as well as Multis. Instrument categories divide into Atmospheres, Instrumentals, and Percussives, which subdivide into folders arranged by cinematic functions; for instance, the Atmospheres folder holds subfolders subdivided as Atmospheres and Stingers.

With the exception of an occasional pad, the Atmosphere folder's main offerings are predominantly effects, such as atonal (and quite creepy) sounds populated with jangly, moving rattles and overtones (play these in clusters for maximum effect); evolving, mystical sounding drones, many of them arranged as one-finger chords or in

## Snap Judgment

**PROS** A huge assortment of keyboard instruments shaped in conventional and imaginative ways, coupled with great tools for animated mayhem. Tons of programmability.

**CONS** No MIDI drag-and-drop feature. Some folders are functionally redundant.

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**Fig. 1. The Effects page offers tons of real-time control, You can click on any of the effects and add additional sequenced control, or sync to the Step Animator.**

simple intervals; animated filter-sweep sounds; subterranean-sounding rumbles; and lots more. The overall moods evoked here are best suited for science fiction and fantasy, evoking a sense of wonder, fear of the unknown, and adventure. The folder of stingers follows much the same tack, albeit set up with abrupt, and often edgy attacks, or in some cases, with dramatic piano flourishes. Not all is edgy here; "Kiss of Venus" 1and 2 deliver impressionistic romance at its finest (listen to audio clip 1 online).

## Animation Sequencer

The Instruments folder further subdivides into arpeggiated sounds and folders of patches based on specific sampled instruments, such as acoustic piano, Wurly, harpsichord, and others. The Arpeggiated folder brings in functionality from another Sample Logic instrument, Arpology (reviewed Aug. '14), namely the sophisticated and dynamic hybrid of arpeggiator and step sequencer called the Step Animator. The basic concept provides for a programmable step sequencer with boatloads of real-time control, randomization, stuttering, and other techniques that bring variation to the typically repetitive output of arpeggiators. Most of the patches are laid out in 4/4 or 2/4 time, but you can change the time signature, hit the software's Quantize button, and the Step Animator will adapt to the new meter.

What's more, the Effects section, accessible from a tab at the bottom of the instrument provides a pared-down but powerful step sequencer for modulating each of the patch's eight effects. As with the Step Animator, you can create your own sequences, chose from a menu of presets, or use the Sync to Animator button, in which case the modulation pattern follows the rhythmic and dynamic contours of the Step Animator (listen to audio clip 2 online). I was able to change presets in real time, my own creations among them, from the drop-down menu without a hiccup. Rhythmically and texturally, there's an awful lot to explore here. I did miss the Arpology feature that lets you drag sequence data to a MIDI track, however.

Accompanying the Arpeggiated folder are folders dedicated to specific instruments: harpsichord, organs, acoustic pianos, processed pianos; synths, toy instruments and Wurlie have their own folders. Lest you think that these are simply playable replications of those instruments, a random sampling will convince you otherwise. The harpsichord folder is ample proof, with more conventional plucked and muted versions on offer alongside reverse-attack instruments, slow-blooming, ethereal synth-pad renderings, and menus of major and minor one-finger chords and flourishes mapped across the keyboard. Of course, each patch gives you the tools to quickly create and save your own arpeggiated masterpieces, too.

## Effects and Wavetable Synth

Loading an instrument patch immediately brings up a set of 12 buttons granting immediate access to the patch's complement of effects, as well as trigger pads, LFO, Arpeggigator (a sequenced audio gate, not to be confused with the Step Animator), and a very simple mixer (See Figure 1). As with Arpology, Cinematic Keys bolsters its sound set with a wavetable synthesizer with eight basic synth waveforms a choice of a some basic, but useful controls, including an ADSR envelope, detuning, and a low-pass filter with adjustable cutoff and resonance. The Mixer's main function here is to balance the output and panning of the synth with the main sample content.

## More Sounds

The Percussives folder serves up Hit Ensembles: dramatic, often startling maps of various booms, scraps, flourishes and other sounds, meant to be played in clusters. These provide a useful adjunct to the folder of stings. Likewise, the Impacts folder is eminently suitable for stings. Although the content is different than the ensembles, I couldn't discern any functional difference between the two.

Kits is a blast. You get 23 drum kit maps, comprising percussion sounds—often of indeterminate origin or processed beyond recognition although, I detected standard kit pieces and clay drums. Some of the processing ranges from fairly conventional treatments to impressions of Hugh Padgham on a bender. All of these are laid out as drum kits, to trigger into your host sequencer, but you'd be missing a serious bet if you didn't play some clusters and run these through the Step and Effects Animators (listen to audio clip 3 online).

There's plenty more in the Percussives folder, including loops, which stretch individual tempo-synched grooves across the keyboard. Sequences brings the Animators into play with more tempo-synched arpeggiations.

## Multis

The collection takes good advantage of Kontakt's multitimbral capabilities in three folders. Construction Beds gather complimenting instrument patches to different keyboard zones, for example, a solo instrument, a rhythmic loop, and a pad.

Stacks combine sounds in layers that are meant to be played as a whole. "One Note Glory" says it all: Tons of motion, meant to be played with one finger. All the same, load up "Artistic Adventure" and try a couple of two-and three-note combinations for some very atmospheric, polyphonic wildness as well as excellent eighth-note song starters (check out audio clip 4).

## Conclusions

Cinematic Keys builds on SampleLogic's previous projects to create a wealth of resources for film and game scoring as well as composers in search of a broad rhythmic and timbral palette. As mentioned earlier, presets lend themselves best to the fantasy and science fiction genres. Nonetheless, with all that sculpting the library proffers, if you can't find it, you can build it. Enhanced by a sophisticated and dynamic arpeggiator, a nice array of effects, and lots of real-time control, Cinematic Keys yields a remarkably malleable array of evocative sounds. ♫

## Bottom Line

A huge collection of expressive instruments that you can bend to any purpose, cinematic or otherwise. Well, maybe not bluegrass.

**$349.99 list**
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# ROLAND SBX-1

BY FRANCIS PRÈVE

**BACK IN ANCIENT TIMES, WHEN DINOSAURS ROAMED THE EARTH AND** manufacturers couldn't agree on clock synchronization standards, there was a sizeable market for "sync boxes" to get everyone's drum machines marching in lock step. Then MIDI came along and made that a thing of the past—until vintage gear and voltage control became all the rage with a new generation of keyboardists and producers. Between the modular gear, MIDI drum machines, analog grooveboxes, and Roland's new Aira series, things were starting to get messy again.

Fortunately, the designers at Roland took notice, reanimated their old SBX-80 sync box with a ton of modern features, and christened the unit the SBX-1. The primary purpose of the SBX-1 is to serve as a mediator between today's array of sync standards, but Roland took things a step further and included four voltage-based outputs that allow users to do all kinds of nifty tricks with their newfangled modular gear. There's a lot of power in this little box, making it worthy of a very close look.

## DIN Sync

In the 1980s, DIN Sync was Roland's proprietary method for sending clock and start/stop information between its drum machines and sequencers, most notably the TB-303 and MSQ series.

While you no longer see DIN sync on anything but vintage Roland gear, there are enough working units out there to warrant its inclusion here. I have a few friends in Austin, Texas, who own qualifying beatboxes, so I was able to test the DIN features with a buddy's TR-606 and everything worked as advertised, with negligible slippage. We ran it for nearly 30 minutes straight and all was splendid. At one point, my DJ ears might have detected a whisper of kick flamming after about 20 minutes, but with a tap of the SBX's Sync button everything was seamlessly locked again—and it's worth noting that the culprit could have been the 30-year-old TR-606, not the SBX-1.

## Snap Judgment

**PROS** Accurate sync across MIDI, DIN, and voltage trigger standards. The SBX-1 can serve as a master clock for hardware-based rigs. Four voltage outputs allow integration with vintage or modular gear. USB integration for use with DAWs.

**CONS** No support for the Hertz-per-volt standard. A bit pricey.

If you're feeling particularly retro, you can even use the DIN sync input as your master clock, so slaving MIDI grooveboxes (or Aira machines) to a vintage TR-808 is another option. Personally, I think that's a tad ambitious in the 21st century, but without a doubt there are some die-hards who will make great use of this feature.

## MIDI

One of the SBX-1's selling points is its ability to sync multiple Aira units to a single computer—or

even to the SBX itself as the clock source—so naturally, I spent some time testing it with my beloved TR-8 and TB-3. It would have been an absolute shocker if they didn't snap into place, so naturally they did.

The SBX-1 also works as a standard USB MIDI interface, in case you need additional ports for controlling your hardware synths. Since many audio interfaces only include a single MIDI output, this is extremely handy for eliminating the dreaded MIDI thru cascade effect.

## Voltage Control

The SBX sports four 1/8" mini jacks for interfacing with voltage-based analog gear. There's a CV out, gate out (switchable between positive and negative polarity), a "bend" out that's tied to the pitch-bend wheel, and an aux output that can be used for either modulation wheel, velocity, or as an additional trigger out.

I tested these voltage control outputs on both my (new) Tom Oberheim SEM and vintage SH-101 without a hitch. Both synths performed flawlessly, which put a big smile on my face. That said, the SBX-1 doesn't support the Hertz-per-volt standard, only the more common volt-per-octave standard, so several vintage Korg and Yamaha synths aren't invited to this party. (Maybe that could change with a software update at some point?) Even so, the new Korg Volcas played nicely with the SBX when using it strictly as a trigger source or via MIDI. What's more, you can apply shuffle to the Volcas' triggers, adding some lovely swing to their groove.

If you've been following my recent Dance how-to columns, you'll be pleased to know that the SBX-1's aux output is perfectly suited to doing magic tricks in conjunction with track automation. Just select the modulation wheel as its input and send the voltage to whatever parameter in your modular synth strikes your fancy, then draw in your automation curves in your DAW. It's also great for controlling filter cutoff via velocity, for pseudo step-sequencing effects.

## Conclusions

After spending a weekend kicking the tires on the SBX-1, I became rather fond of it as a studio accessory, despite its $500 price tag. Granted, it's not the kind of item you'll need if you're working in a MIDI-only or software-centric environment. But for keyboardists who have racked up a collection of voltage controlled gear, or who want a no-nonsense solution for syncing up older grooveboxes with new Airas without the need for a computer—the SBX-1 may be exactly what your rig needs.

## Bottom Line

A modern way to bridge vintage synth protocols with MIDI, USB, and software.

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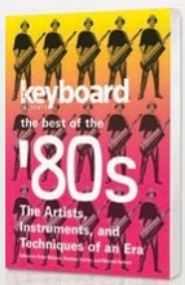


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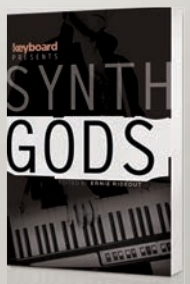


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MIDI in, RCA audio out. The PL2 also has a micro-USB jack so you can use it with MIDI controllers that don't provide enough power. The USB jack carries only power, not data.

## PLOYTEC
# Pi L Squared

BY DAVID BATTINO

Keyboard K KEYBUY AWARD

**A $99 SYNTH THAT'S POWERED BY A MIDI CABLE AND SMALL ENOUGH TO FIT** in your mouth? That would be enough to put the Ploytec Pi L Squared (PL2 for short from here on) in the running for musical gadget of the year, but this tiny instrument, less than two inches on a side, also pumps out unique new sounds. Ploytec is a German company best known for developing USB audio drivers for dozens of manufacturers ranging from Apogee to Yamaha. Playfully, they introduced the PL2 by claiming, "No other synth on the market has more aliasing and quantization noise." The PL2 is based around an eight-bit microcontroller for raspy, cutting timbres. However, it can also produce softer, warmer sounds, thanks to its analog filter.

## Overview

My first move was to plug the PL2 into my original Novation Bass Station, a monophonic analog synth. (The Ploytec website lists controllers reported to work with the PL2.)

Realization 1: The two-voice polyphony on the PL2 opens a lot of performance possibilities. Realization 2: To play the PL2 expressively, you need to use multiple MIDI continuous controller messages. My old Bass Station wasn't up to the task. Ploytec offers hardware controller templates online, as well as a Native Instruments Reaktor ensemble that lets you tweak the PL2 from a DAW.

Every synthesis parameter on the PL2 is mapped to a MIDI CC. To change envelope attack time, for example, you adjust CC 17. The free software editor simply transmits CCs, turning editing into performance and performance into presets.

You can save your patches into 32 user program slots, though the saving process is unintuitive: Call up a program between 33 and 64 (the user bank), make your edits with the editor or external controllers, and then send another program change from an external MIDI source. When you switch back to that program, your new patch will be there. Settings interact in unexpected ways, so check the PL2 manual for tips. For example, setting "Digital Cutoff" to zero maps velocity to filter frequency.

## Square Wave Synthesis

Every boutique synth needs a novel technology; the PL2's is called square wave synthesis. Two digital oscillators produce pulse waveforms. Using two pulse-width modulation (PWM) controls, you can vary the width of alternate cycles independently, producing a rich, animated sound. Firmware version 2.0 offers seven pulse variations plus a combo bass drum/noise wave that's split across the keyboard. The drum follows MIDI notes, so with a touch of filter distortion, you can create a cool bass and snare duo.

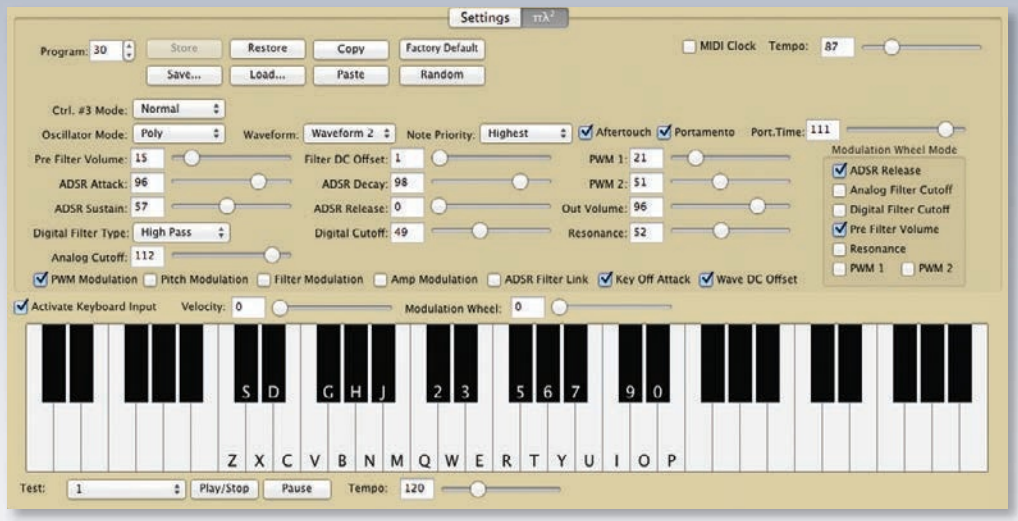
Waveform 1 is warm and buzzy; varying the pulse width modulation adds a sub-octave. Waveform 2 mixes two pulses an octave apart for metallic or organ sounds. Waveform 3 has a more chorused timbre than number 1. Waveform 4 sounds clearer than number 3. The others add unusual harmonics and detuning. There's a lot of potential in square waves! You can also configure the oscillators in monophonic, polyphonic, unison-detune, or octave mode to make massive basses and leads.

Next up is the resonant digital filter, with highpass, lowpass, and bandpass modes. It's not as

## Snap Judgment

**PROS** Super-compact. MIDI-powered. Unique sound. Speech synthesis. All parameters are CC-controllable.

**CONS** No wheel-controlled vibrato. Pitch-bend is always one octave. No dedicated filter envelope. No legato envelope triggering.




**The straightforward Mac/Windows editor sends tweaks to the PL2 in real time as MIDI CC messages. Click the Random button for inspiration.**

juicy as an analog filter, but you can get grinding distortion by cranking the DC Offset (CC 22). Your snarling sound then passes through an analog filter and saturation stage, which rounds off the digital edge. The non-resonant analog filter is designed to dial in warmth; sweeping it produces glitches.

On the modulation side, a lone ADSR envelope handles both the amp and digital filter. Unfortunately, there's no legato retriggering mode for bass slides. More strangely, the mod wheel doesn't offer vibrato, and pitch-bend is pinned to an octave.

## A New Voice

Firmware version 2.56 converts the PL2 into a speech synthesizer inspired by the 1980s General Instrument SP0256 chip. (Imagine a Speak & Spell with velocity sensitivity and pitch-bend.) You can trigger notes from the keyboard while selecting speech fragments from the mod wheel, or vice-versa. It's rough, percussive, and full of personality.

Updating the firmware with a MIDI sys-ex dump took less than five seconds after I found a compatible MI\DI interface, a KMI MIDI Expander. (The first two interfaces I tried didn't work.) You can switch back to version 2.0 just as fast, making the PL2 a true chameleon. Ploytec hints at more updates, including waveforms from the SID chip made famous in the Commodore 64 computer. They're also designing a PL2 with USB in and MIDI out.

## Conclusions

Smaller than your cell phone charger and packed with personality, the Ploytec PL2 brings a big new sound for a tiny price. It's a definite Key Buy.

## Bottom Line

Compact size, tiny price, huge personality. For sound, innovation and affordability, the PL2 is a must-have.

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# BOULANGER LABS csSpectral

BY FRANCIS PRÈVE

**BERKLEE PROFESSOR DR. RICHARD BOULANGER HAS BEEN ONE OF THE** world's leading authorities on the audio-focused Csound programming language since its earliest days at MIT. His company, Boulanger Labs, is quickly becoming a go-to for iPad musicians with a taste for the unusual. A perfect example of Boulanger's devotion to cutting-edge audio tools is his latest iOS offering, csSpectral.

As with his previous releases, csSpectral puts the focus squarely on processing sound, as opposed to a keyboard-based or DAW-like interface. Don't expect to be whipping up riffs or sequences in csSpectral—that's not its purpose. Instead, this app is a treasure trove of deep FFT functionality, which makes it perfect for performers and producers who work with samplers and sample-based groove tools.

By importing various audio from your computer or iTunes library, csSpectral lets you apply its wide range of processing tools to the file and render the results. You can MIDI-map parameters to an external controller. What's more, csSpectral is Audiobus compliant, so if you want to use it in conjunction with a compatible iPad DAW or synth, you're in business. Here's a quick overview of the processing.

**Filters.** A *de rigueur* multimode filter is on hand, along with a three-note comb/resonator that's cool for embossing a chord on your audio material, but the real showstopper here is the modal resonator. It whips up some astonishingly useful physical modeling effects akin to those available in Logic's Sculpture synth or Ableton's Corpus audio effect. There are quite a few models to choose from, ranging from wine glasses to Ti-

## Snap Judgment

**PROS** Extensive FFT and granular processing tools. Exotic reverb and delay functions. Chopping and stuttering galore. Audiobus support. Extensive MIDI CC control of parameters.

**CONS** Heavy CPU use requires a newer iPad for best results.

betan bowls to wooden plates. Drum and percussion loops are ideal to use as the input, as these provide the proper "excitors" for the model to process. If this were the only thing this app did, it would still be worth the price of admission.

**Delays.** This section includes three modes: granular, lo-fi, and "stereo glitch." While I was expecting the lo-fi mode to deliver tape/analog effects, it's actually more of a digital distortion. The glitch mode is cool for stuttering and chopping your audio.

**Spectral.** Here, each of the seven modes delivers a different type of FFT processing. The phase vocoder mode works much like a standard pitch-shifter. Spectral warp resembles a frequency shifter. EQ allows adjustment of six tunable bands and imparts a bit of quirky digital distortion. Spectral SampleHold does a great job of making you sound like BT, and ReSynthesizer delivers pitched results that sound like a cross between a flanger and briskly rubbing a balloon. That said, my favorite was the Spectral Buffer, which transforms your source material into a series of complex sustained notes, each perfect for importing into a sampler as raw wave material. Letting it run on a drum loop delivered countless inharmonic options, while running spoken words through it created various sustained vowels. I was pretty blown away by this feature.

**Reverbs.** The three reverbs definitely go against the grain. The waveguide reverb will be the most familiar to casual users, whereas the phaser and "ball in the box" options are fantastic for creating truly exotic acoustic resonances.

**Cutters.** These three granular processors—Vari-Gate, Bouncer, and MicroCutter—will be immediate favorites of BT fans and anyone else who's into experimental glitch effects. In some ways, it's almost *too* easy to get results. They're all great fun to tinker with, especially if you like flashy and/or academic production techniques.

All in all, csSpectral is a powerhouse when it comes to advanced processing tools, FFT or otherwise. If you make music that pushes the envelope—or just want to add a bit of intelligent spice to more mainstream productions—you can't afford to miss this app. It's definitely worth the 20 bucks. ♫

## Bottom Line

Fantastic collection of intelligent and unusual effects.

**$19.99**
**boulangerlabs.com**

# Classifieds

## Classifieds

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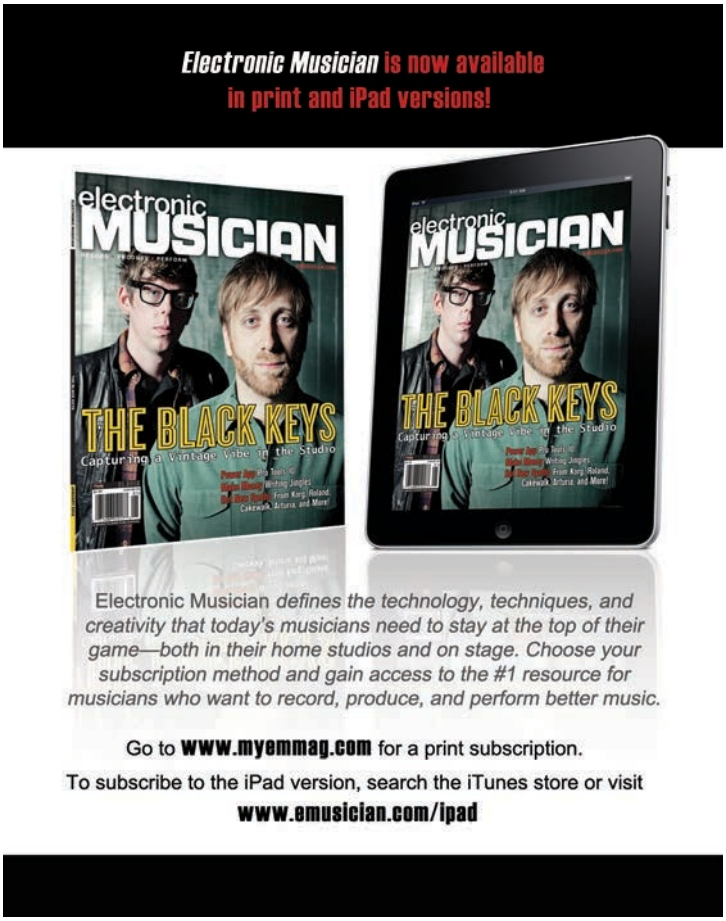




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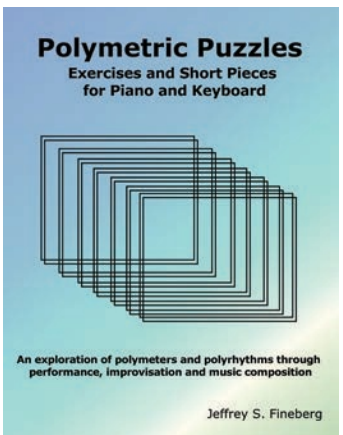


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# 5 THINGS I'VE LEARNED ABOUT Better Studio Keyboard Parts

BY CHARLIE PEACOCK

Nashville-based producer and keyboardist **Charlie Peacock** has been at the forefront of the "New Nashville" sound, producing acts like the Civil Wars, Holly Williams, the Lone Bellow, and Chris Cornell's "Misery Chain" from the *12 Years a Slave* soundtrack. He also recently co-composed and produced the title theme for the AMC drama *Turn*. Find out more at charliepeacock.com.

**I'VE BEEN A PRODUCER, KEYBOARDIST AND PROGRAMMER FOR OVER 30 YEARS.** My concept is rooted in two applications of playing and recording: First, accompanying a vocal, and second, arrangement and orchestration. The first I learned from listening to artists like Bill Evans, Elton John, Jackson Browne, and Chuck Leavell. The second is the most ever-evolving part of what I do as a keyboardist, and one that takes some very non-traditional forms with current music. Still, early on I learned "part-oriented" keyboard orchestration from friends like producers David Kahne and Michael Omartian—two masters of the art. Here are five things I've learned about crafting studio keyboard parts that I hope will serve you as well as they have me.

## 1. Simplify Your Voicings

The classic singer-songwriter piano style that worked so well on songs like Elton John's "Rocket Man" and Jackson Browne's "Doctor My Eyes" in the 1970s seldom works in today's pop music. Younger pop artists are all about *economy* of playing and never letting an accompaniment part poke out. (For evidence, listen to Mikky Ekko on the Rihanna hit "Stay" or my production of "Poison and Wine" by the Civil Wars.) What's "in" today are simple and clean chord voicings with not one stray note in them. This might feel like tying one hand behind your back, but it's all about what captures the emotion of the song.

## 2. Know Your Genres

The perception of appropriate high- and low-end frequencies is something that changes with the times. Programmed pop keyboard parts have never been as full-range as they are now (*e.g.*, deep and wide sub-bass and tinkly bells), yet switch genres and you'll find a whole new set of freedoms and restrictions. For example, current Americana music is all about a warm midrange of largely improvisational playing using the basic keyboard food groups (Hammond B-3, acoustic piano, Wurly, accordion), and the parts can't be too thought out or repetitive. Study all the genres you're interested in and familiarize yourself with their current conventions.

## 3. Use Your Imagination

It's difficult for me to imagine creating keyboard parts without customizing them through analog and digital treatment. For example, I may play an entire acoustic piano part and use the attacks of chorus downbeats to trigger infinite reverbs that I then create pads out of. Going one step further, I may gate the pad and use a percussion or acoustic guitar part as a key trigger to create a rhythmic part.

## 4. Skill Matters

Despite the democratization of the recording and creation process, technique and skill still matter—a lot. For example, over the last five years almost every record I've produced has been "off the DAW grid" with no quantizing. I'm far from perfect, but I'm glad that time, groove, and execution are keyboard values I was taught. I remain a huge advocate of music education and believe the fundamentals still give me an edge today over players that only play with quantization in mind.

## 5. Listen First, Play Later

You know the saying, "To a musician with a keyboard everything looks like a chance to overdub a hundred parts"? Don't be that guy. Successful, meaningful keyboard parts are always about *context*. Listening is everything. Always hear *before* you play and don't be afraid to *not* play. Just because you have some wonderful vintage keyboards and tons of software synths doesn't mean you have to use them all. Think like an artist first and a keyboardist second. It's much better to listen, hear, and execute, say, one highly musical sine wave with a Memory Man delay part in the bridge, than to muck up an otherwise lovely track.

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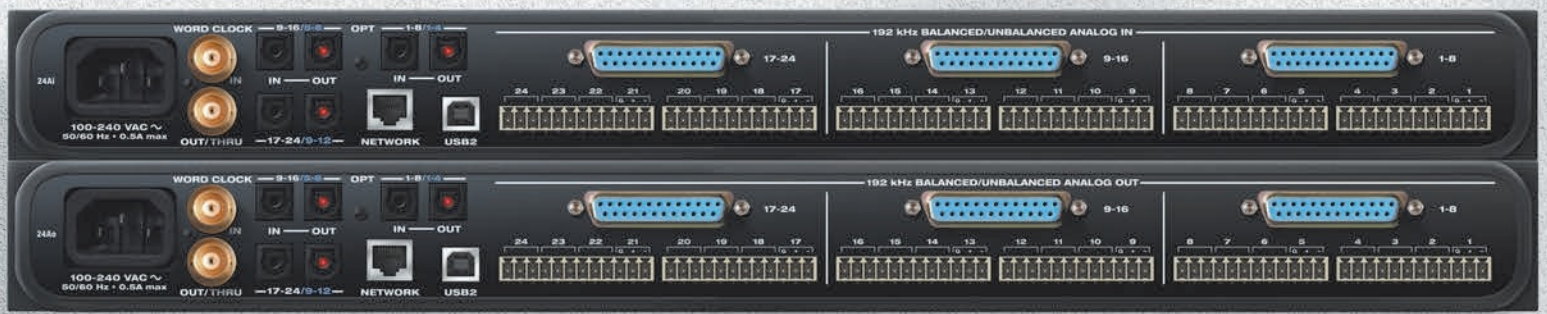


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